

**Datasheet**

# Qosain Scientific PhysWatt

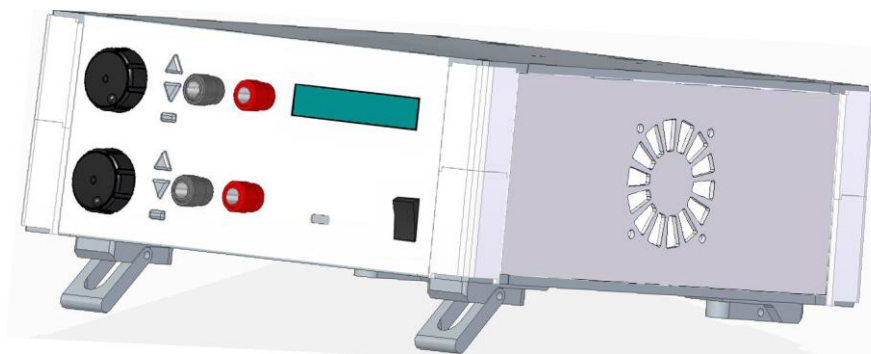
**Introduction:**

An all-rounder programmable power supply, PhysWatt can operate as both, a constant power (CP) and a constant current or voltage (CC/CV) supply—automatically switching between the CC and CV modes. Use it as a standalone instrument or interface with PhysLogger, utilize its multiple modes to easily generate, adjust, record, and manipulate any AC or DC waveform of your choice. More than just a bench power supply, PhysWatt combines the capabilities of numerous instruments such as a signal generator, oscilloscope, and temperature controller!

- Overvoltage, and overcurrent device protection
- Small form factor and lightweight package
- Mechanical:
  - Dimensions:
  - Weight:

**Specifications:**

- Total number of output channels = 4
- Number of variable output channels = 2
- Total power = 70 W
- Resolution:
  - Standalone mode: 0.10 V,



**Features:**

- Low distortion
- Fine resolution
- Stabilized DC output voltage
- Control mechanisms: buttons, knobs, and graphical programming
- Connectivity: Standard BNC and banana jacks
- Standalone and compatible with PhysLogger
- Low output noise — ripple and noise <math>< \mu V\_{rms}</math>

- 0.05 A
- Frequency range = 0.01 Hz to 8 kHz
- Percentage ripple factor
  - Voltage:  $\leq 0.7\%$
- Load regulation
  - Voltage:
  - Current:
- Control modes:
  - Constant Current or Voltage
  - Constant Power
- Response time per unit step: <math>< 60\text{ ms}</math>
- Direct current and alternating current waveform
- Power source: AC 220 V



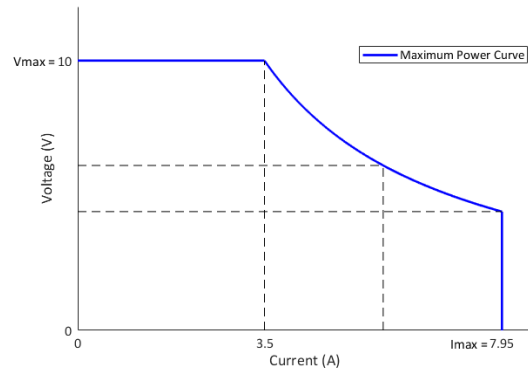
## Operating Modes:

- Independent
  - Each adjustable front channel operates independently on a maximum power curve of 35 W, offering a combination of maximum voltages and currents, ( $V_{max} = 10\text{ V}$ ,  $I_{max} = 7.95\text{ A}$ ).  
 Channel A:  $V = 0-10\text{ V}$   
 Channel B:  $V = 0-10\text{ V}$
- Bipolar
  - Connect both channels to power bipolar circuits and achieve three terminals.  
 Channel A:  $V = 0-10\text{ V}$ ,  
 Channel B:  $V = -10-0\text{ V}$
- Alternating Current
  - Combining both channels of PhysWatt, this mode allows the generating of voltage signals with changing polarity and an amplitude as high as 10 V.  
 Channel A or B:  $V = \pm 10\text{ V}$
- Double Range
  - Combining the potential of both channels, this range allows a direct current as high as 20 V to be supplied from one channel (the other channel is disabled).  
 Channel A or B:  $V = 0-20\text{ V}$

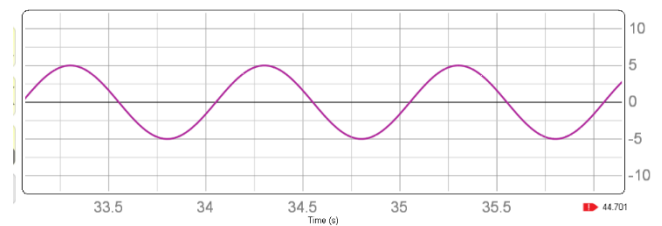
## Typical Applications

- Control heaters and fans to investigate heating and cooling mechanisms
- Investigate temperature oscillations
- Automatic CV/CC crossover applications
- Power bipolar circuits and devices

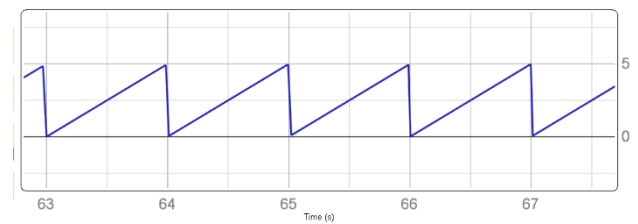
## Maximum Power Curve



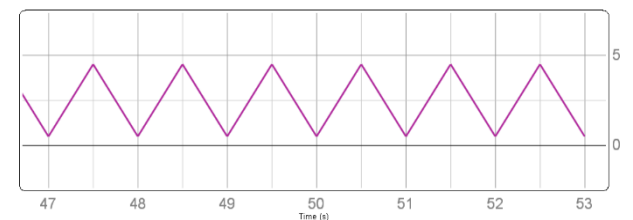
## Output Waveforms



Sinusoidal wave



Sawtooth wave



Triangular wave

## Resources

- Instrument URL:  
[www.physlogger.com/PhysWatt.html](http://www.physlogger.com/PhysWatt.html)
- Discussion:  
[www.community.physlogger.com/t/physwatt-a-preview/22](http://www.community.physlogger.com/t/physwatt-a-preview/22)

