



Laser Power Solution- LDPC

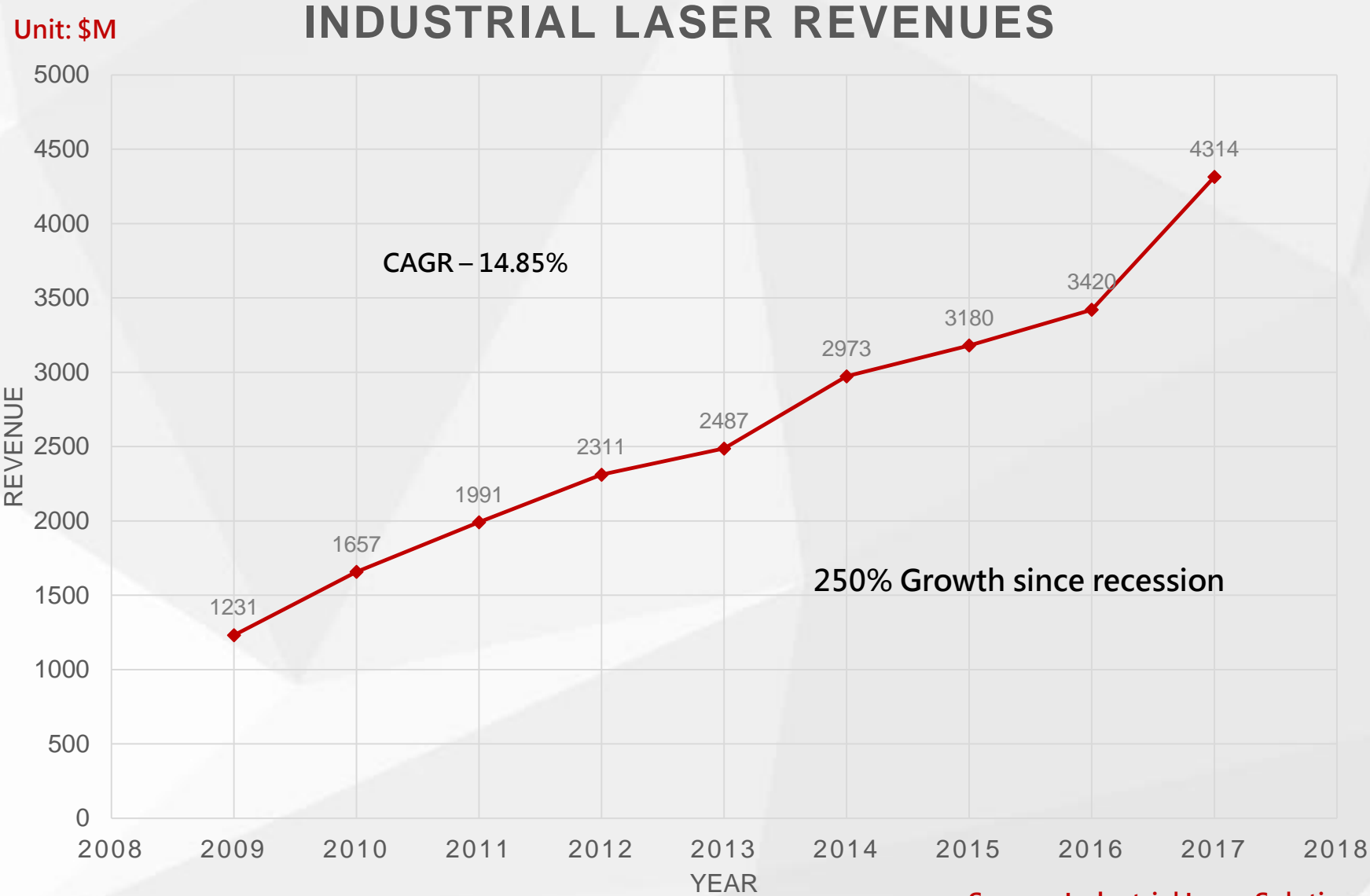
Speaker: Benson



Laser Development Opportunity

- Increasing global demand for intelligent manufacturing and factory automation
- Laser machining and high power metal processing is a huge portion of the increased demands
- Manufacturing procedures incorporating laser machining processes can be more easily integrated and digitally controlled

Laser Market Analysis

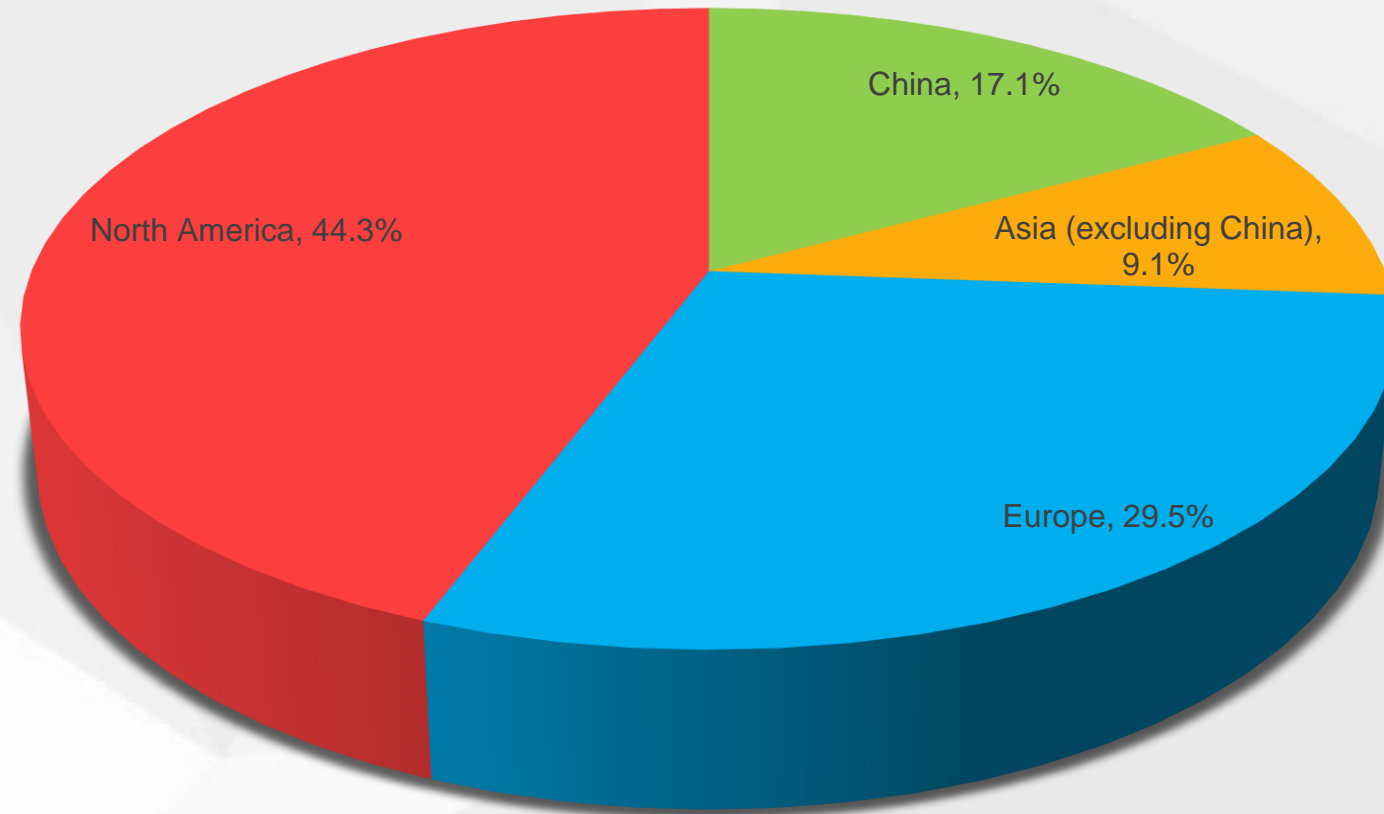


Source: Industrial Laser Solutions



Where the Lasers are Produced

Source of Laser Production (Revenue Flow) - % Share



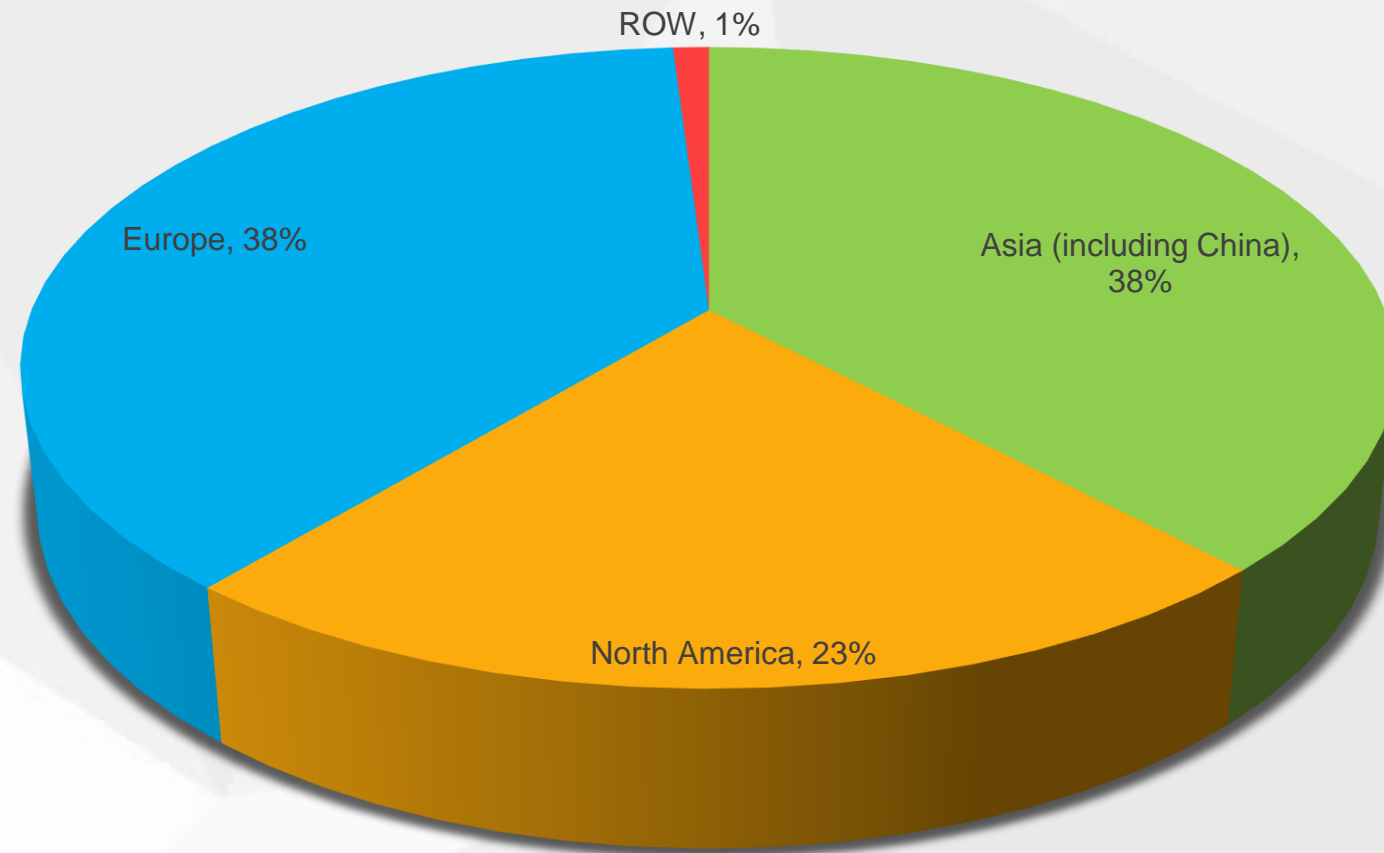
■ China ■ Asia (excluding China) ■ Europe ■ North America

Source: Laser Markets Research

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Where Do these Lasers Go?

2016 Industrial Laser Consumption - % Share



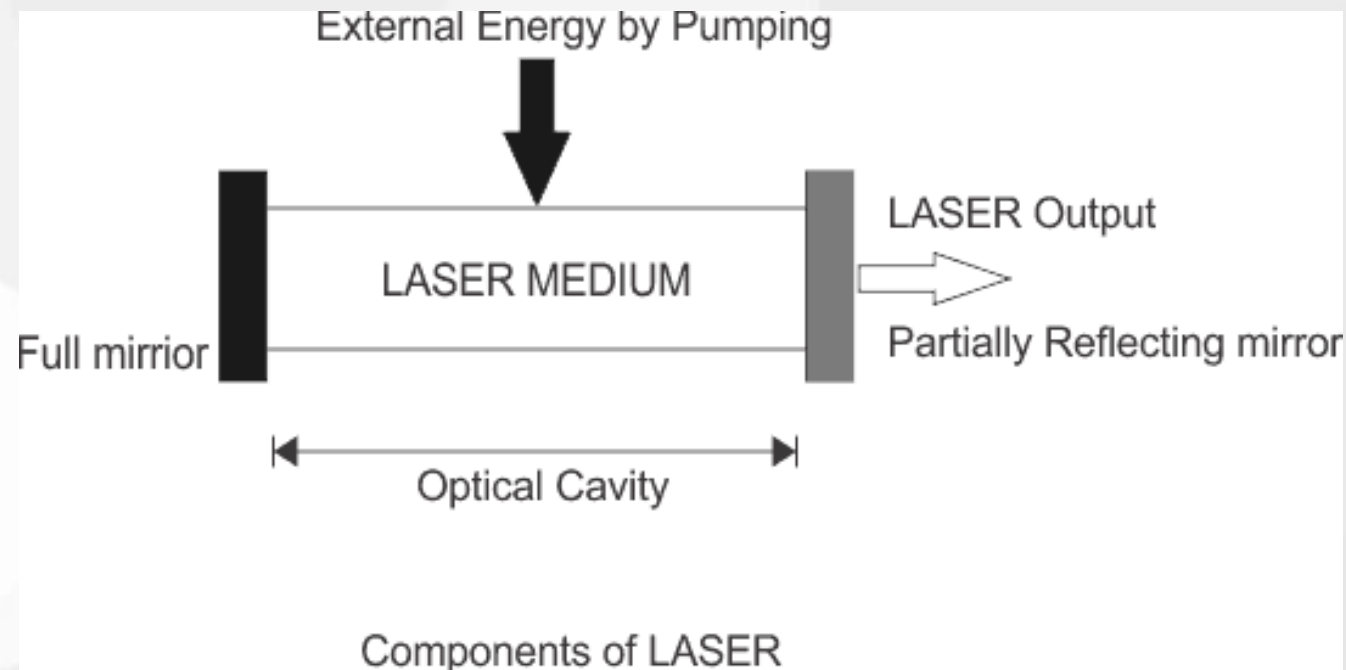
■ Asia (including China) ■ North America ■ Europe ■ ROW

Source: Strategies Unlimited

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What is laser?

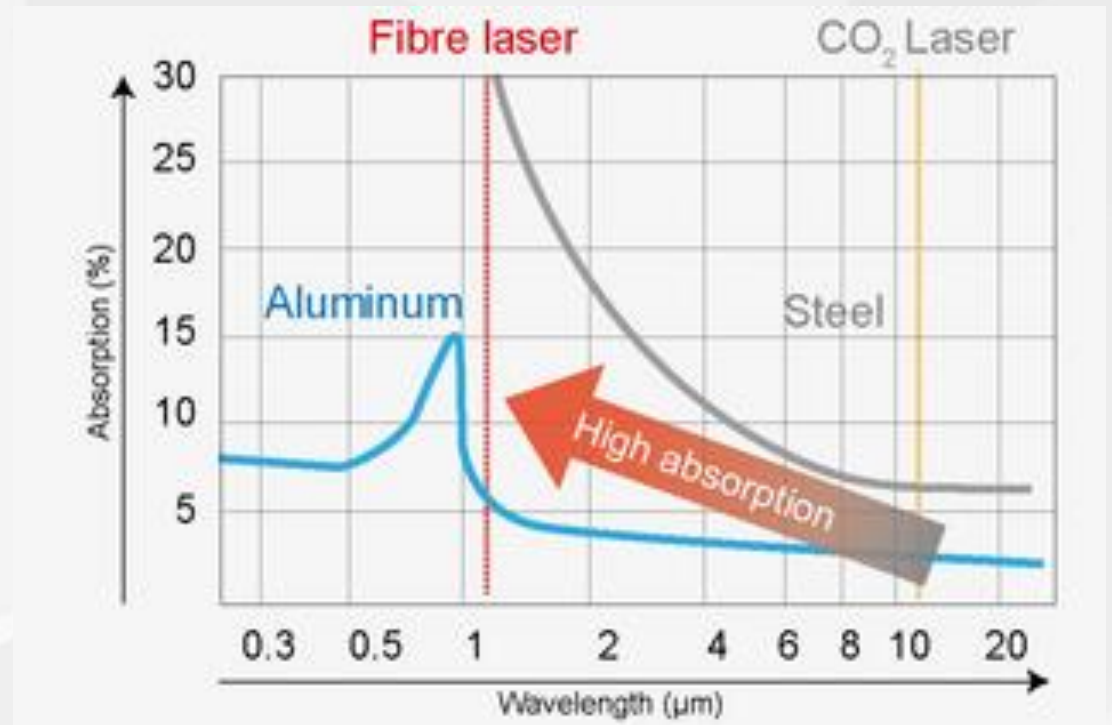
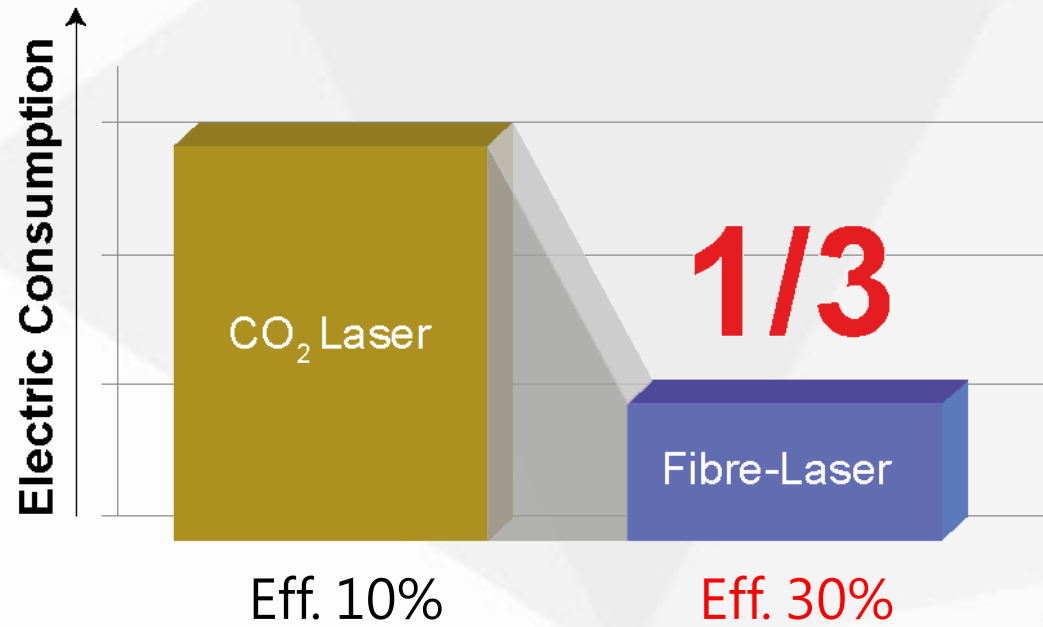
- Light amplification through simulation
- Key elements: pump source, lasing material, optical cavity
- Provides concentrated light which can be used for processing



Laser VS Traditional Processing

- No contact and no impact on the material surface
- Fast processing
- Localized processing, small area affected, less effects on the overall shape and properties of the whole component
- Laser beam is easy to guide and focus; can be applied from different angles and suitable for automation
- Can process different metals and non-metals
- High production efficiency and stable processing quality

Fiber Laser VS CO₂ Laser



MEAN WELL Laser Power Solution

- MEAN WELL offers a large selection of **high-power laser-ready AC-DC power supply** for laser equipment manufacturers that designs their own laser drivers



RSP-1000/1500/1600/2000/2400/3000
DPU-3200



UHP-750/1000/1500/2500
PHP-3500



HEP-600/1000



RCP-1000/1600/2000



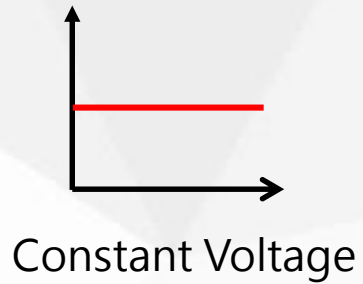
NMP-650/1K2



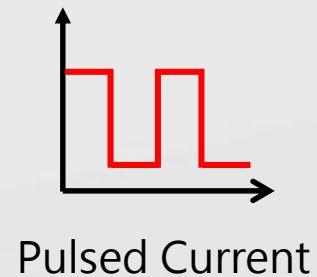
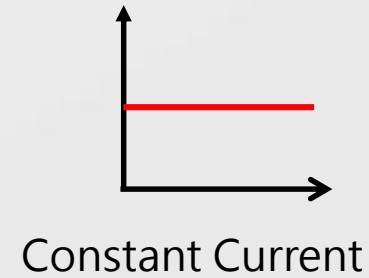
MSP-1000

MEAN WELL New Laser Solution

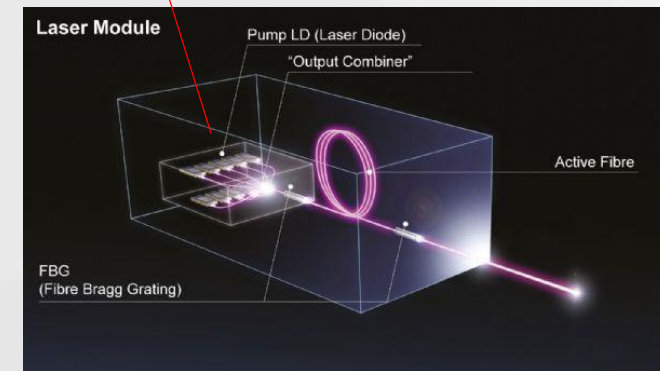
High-Power
AC-DC Power Supply



Laser Diode Driver
LDPC-50A



- Fiber laser
- Diode laser

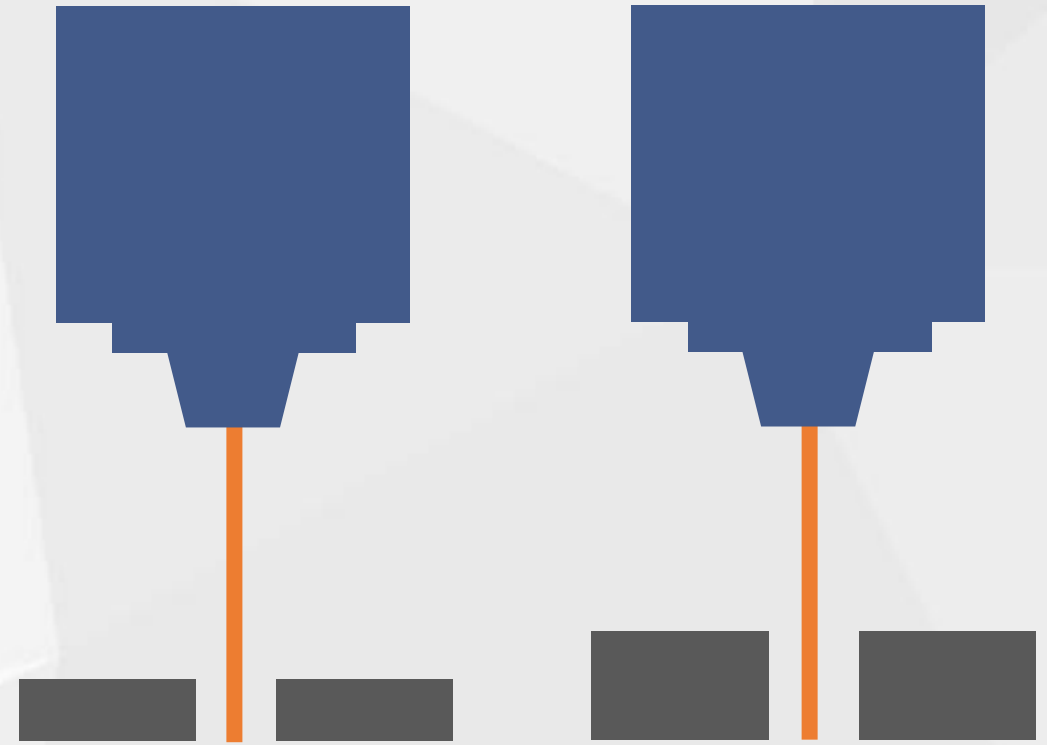


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Suitable for Wide Range of Applications

Output current is 0-50A adjustable

- Capability for wide range of current adjustment on the fly
- Maximum output power is 2750W
- Can increase processing efficiency for laser applications that require constant adjustment to the output current and power



Energy Efficient and Environmental Friendly

High efficiency up to 96%

Power density = 44W/inch³

**POWER
INPUT**



Typical Drivers
60%



**POWER
INPUT**



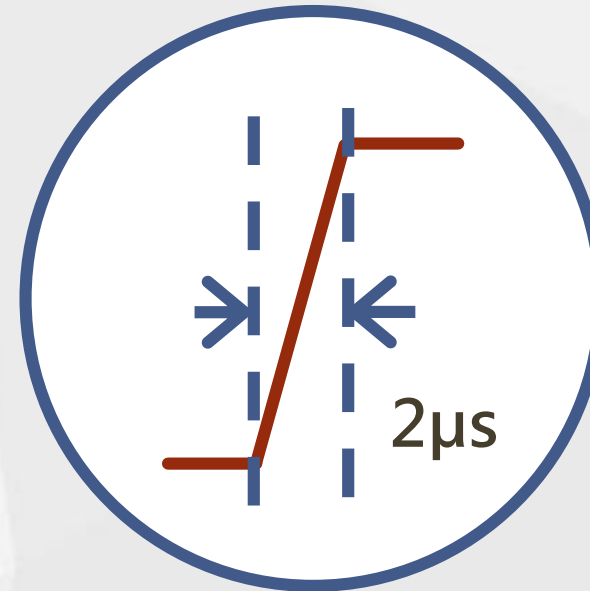
**LDPC-50A
96%**



Fast Response Time

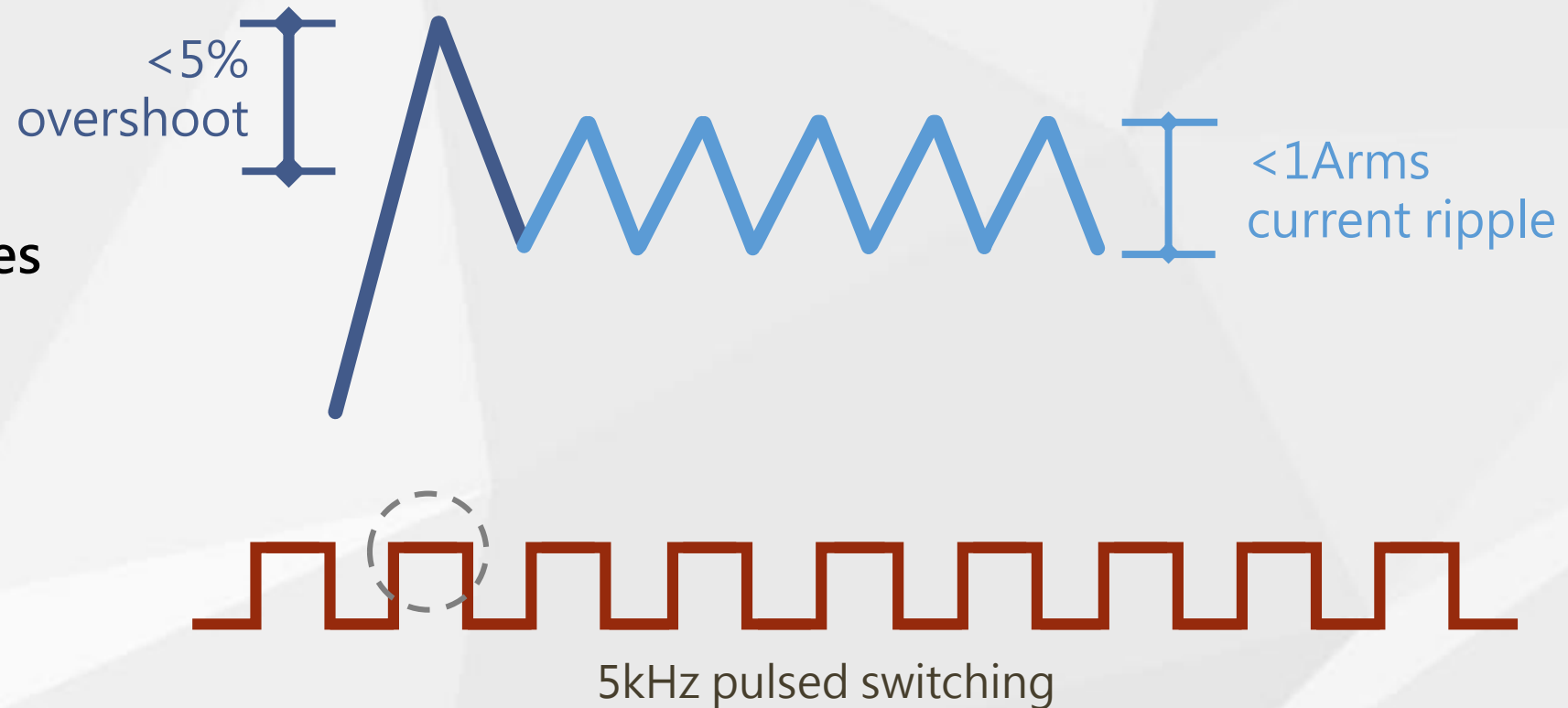
2 μ s ultra-fast rise time

- Patent-pending Hysteresis current control technique
- Reduces laser processing duration, enabling smooth and even processing effects



Output Current Characteristics

- 5kHz output current pulses
- Overshoot < 5%
- Current ripple < 1Arms



Multiple Control Modes

Continuous-Wave (CW) Mode

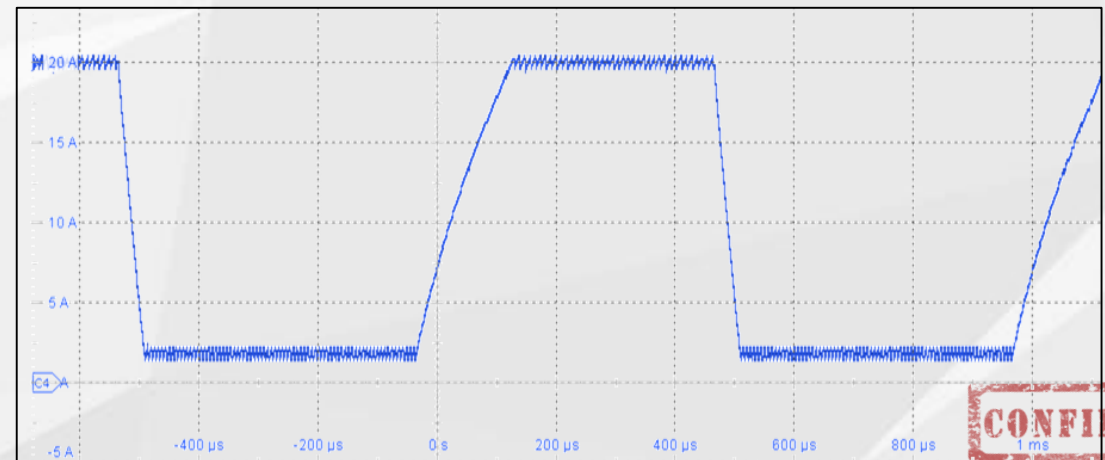
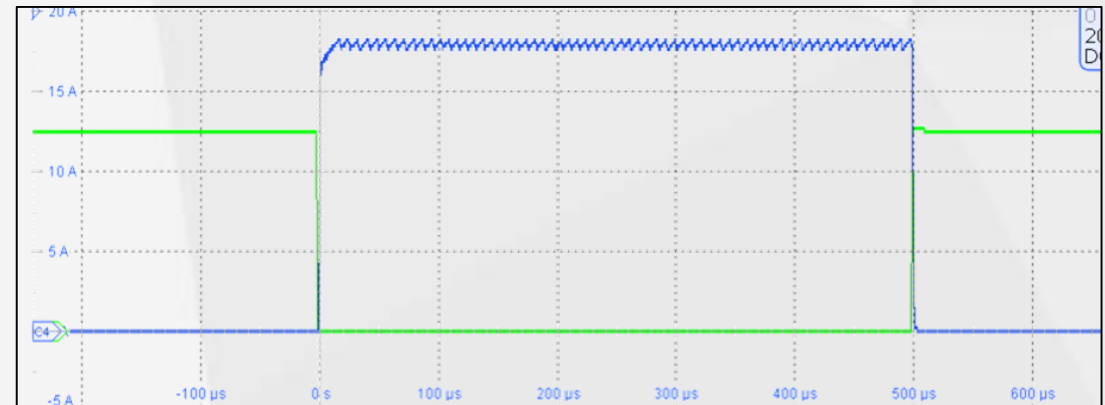
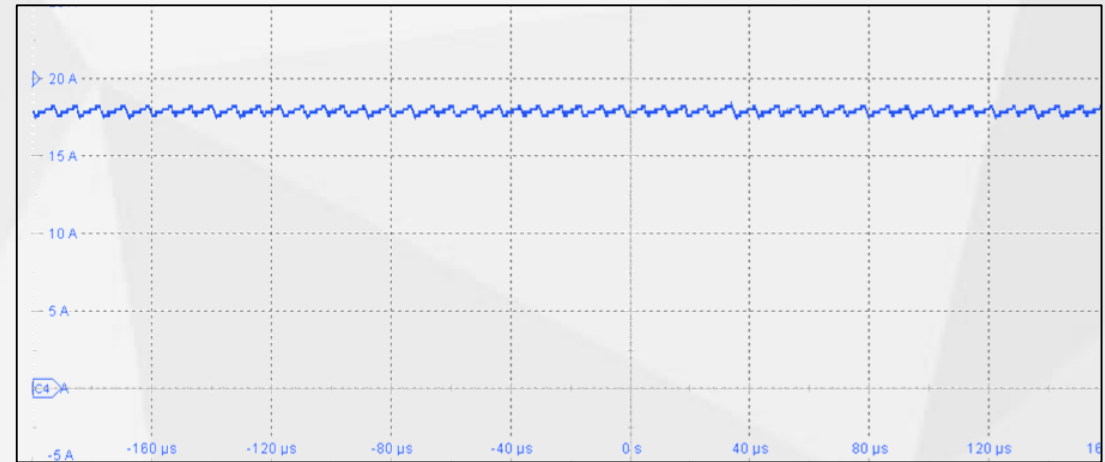
- Stable output current
- Application: cutting, welding, drilling

Pulse Mode

- Temporarily reaches high peak
- Application: marking, engraving

Simmer Mode

- Minimum current level is adjustable
- Slew rate is reduced
- Reduces stress on laser diodes
- Increases stability and lifetime



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LDPC Promotion Opportunities

Laser customer?

- >kW laser applications
- Members of laser related organizations
- Trade show or local customers



2kW Direct Diode Laser

Laser diodes?

- Pump source is laser diode(LD)
- Fiber laser
- Diode laser



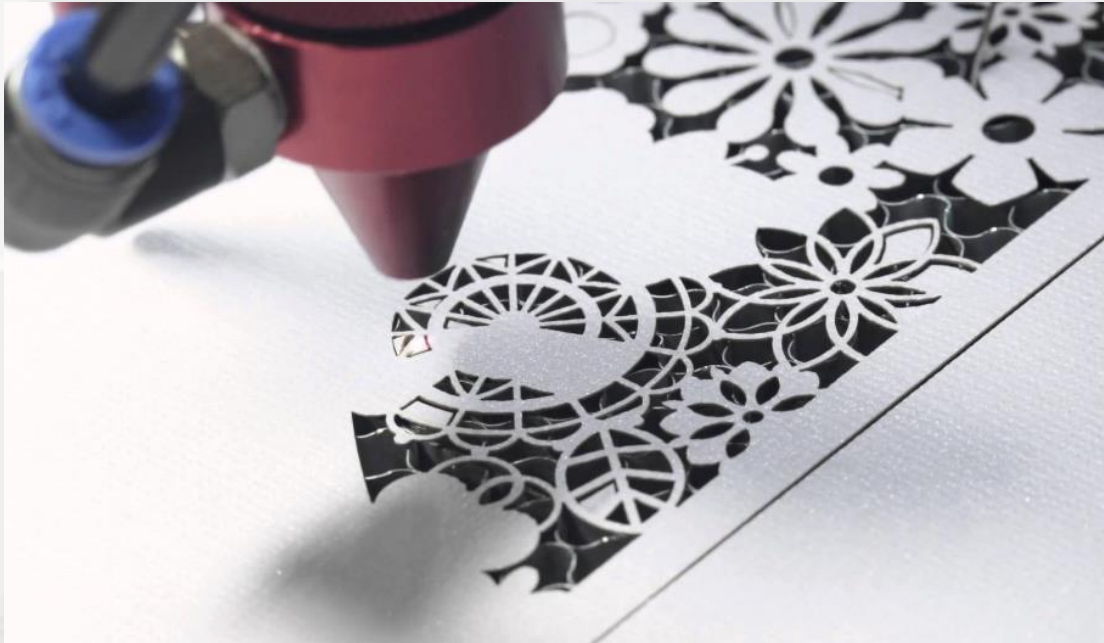
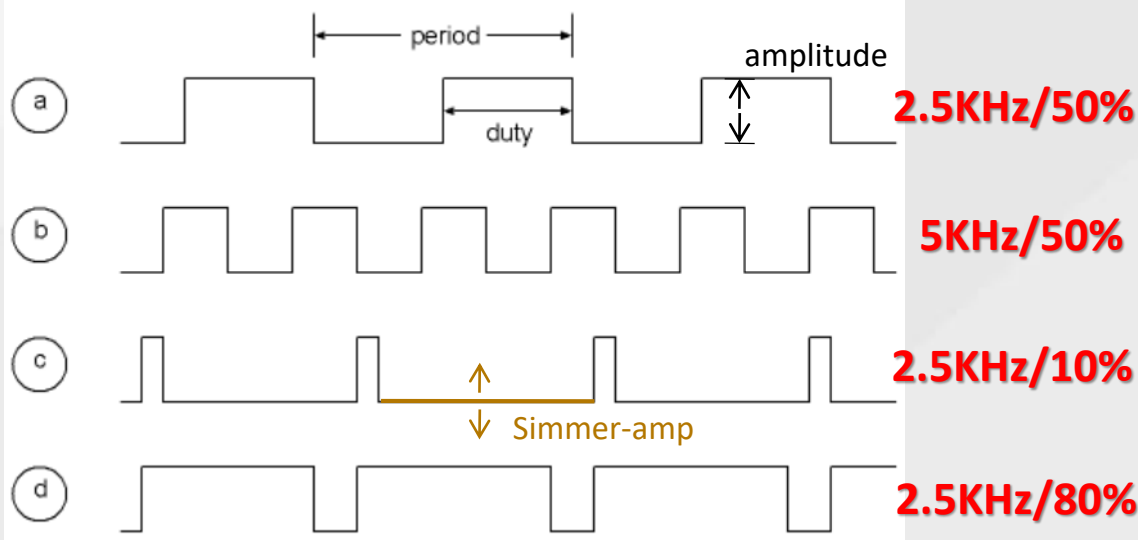
2.1kW Fiber Laser Engines

Driving method?

- CM manufacturing
- Using linear driver
- Self-developed driver

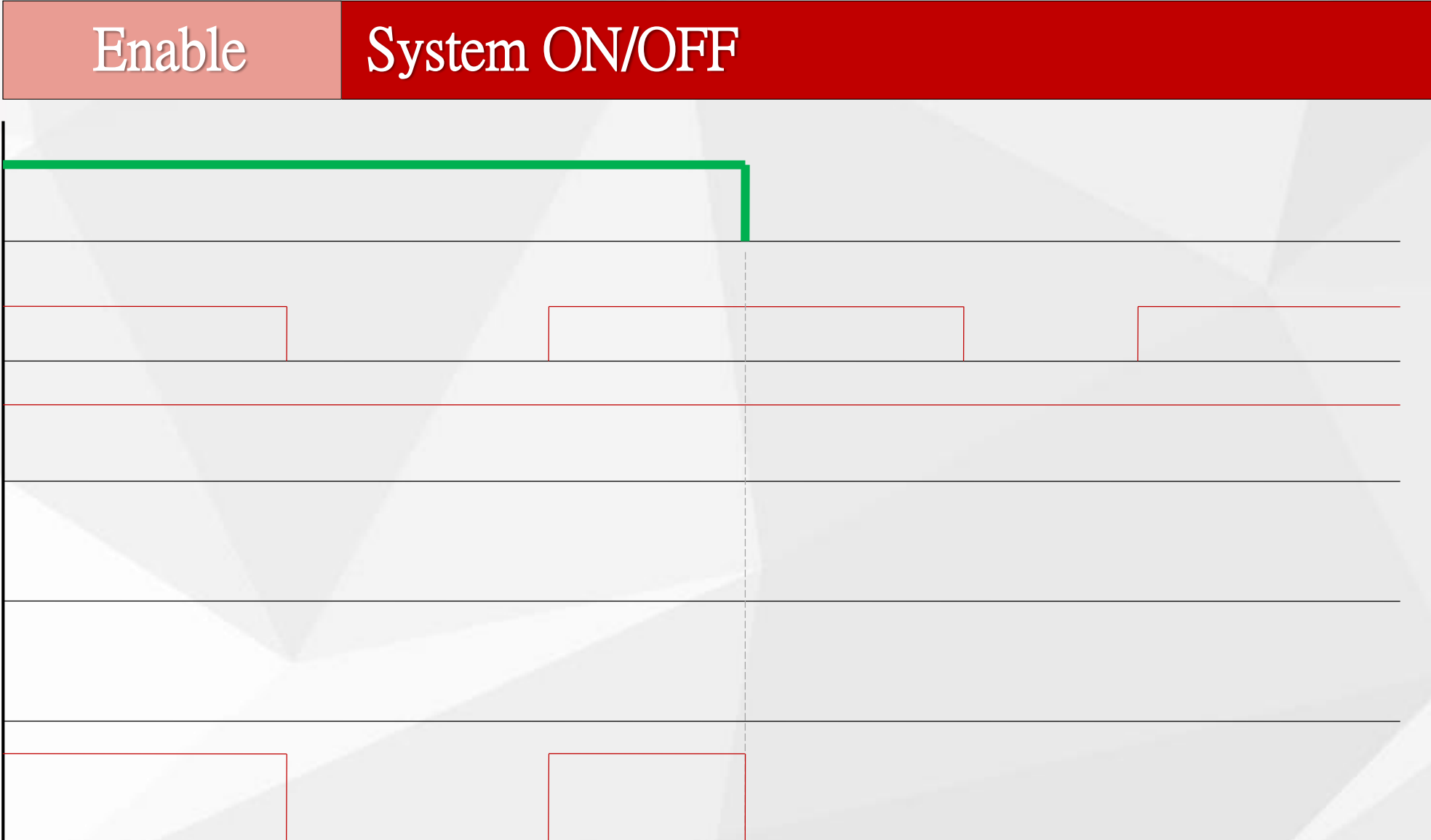
Data Sheet

Control Functions



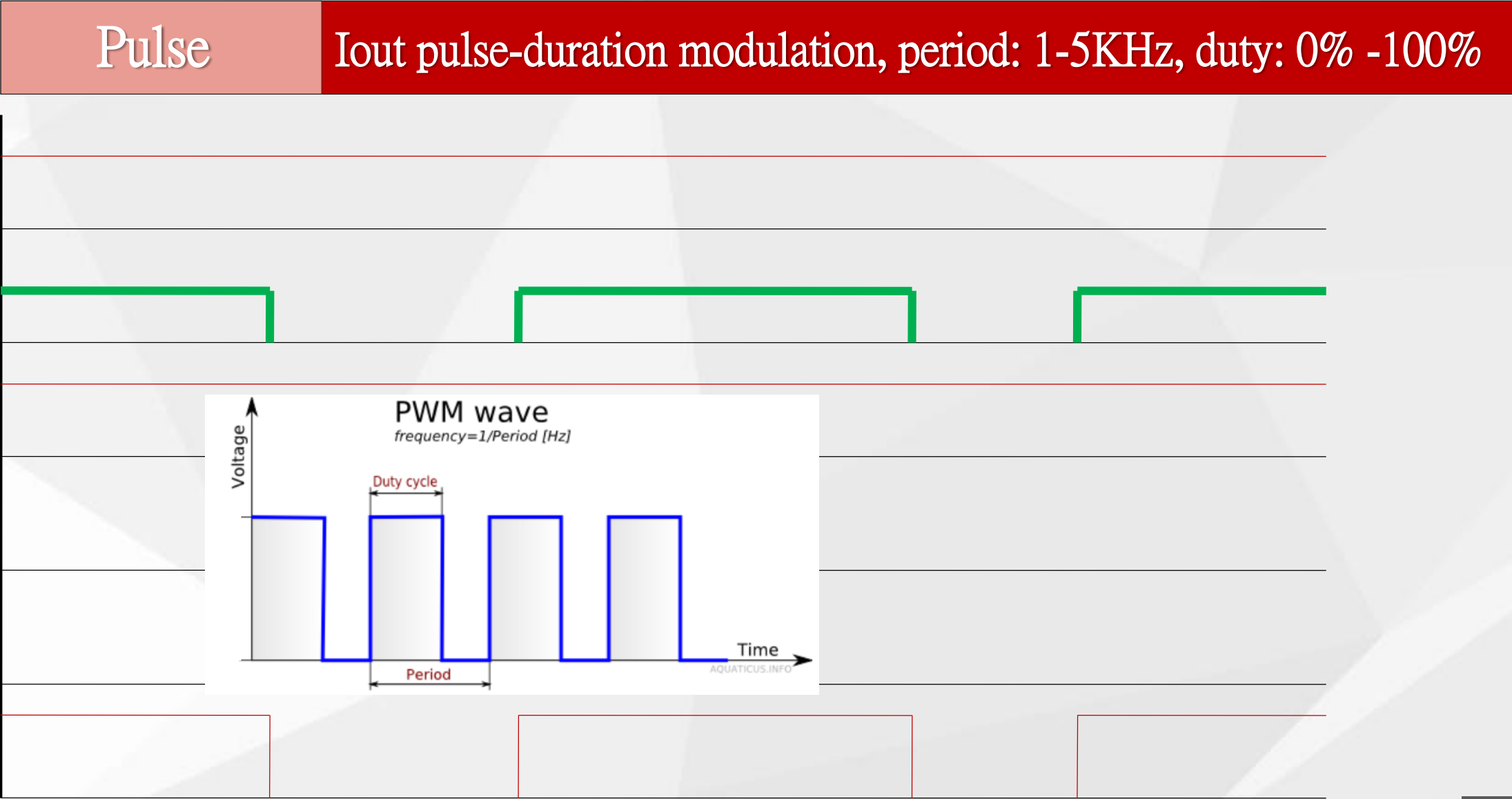
Control Signal	Function
Enable	Turn output ON/OFF
PWM "HIGH"	Pulse (period/duty) Controls frequency, duty cycle, and amplitude Pulse mode: PWM output CW(Continuous Wave) mode: constant current
	I-prog (amplitude)
PWM "LOW"	Simmer current level setting

Function Description



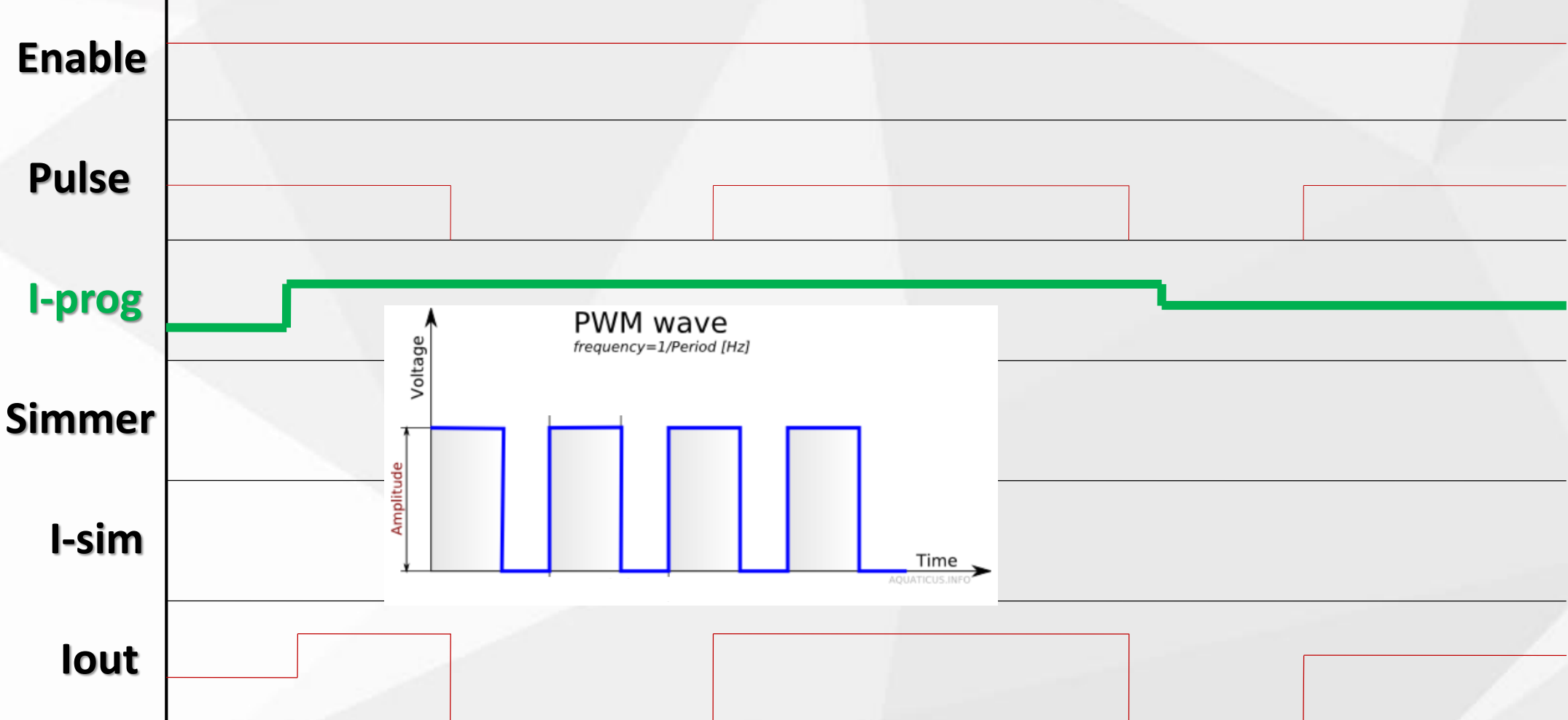
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Function Description



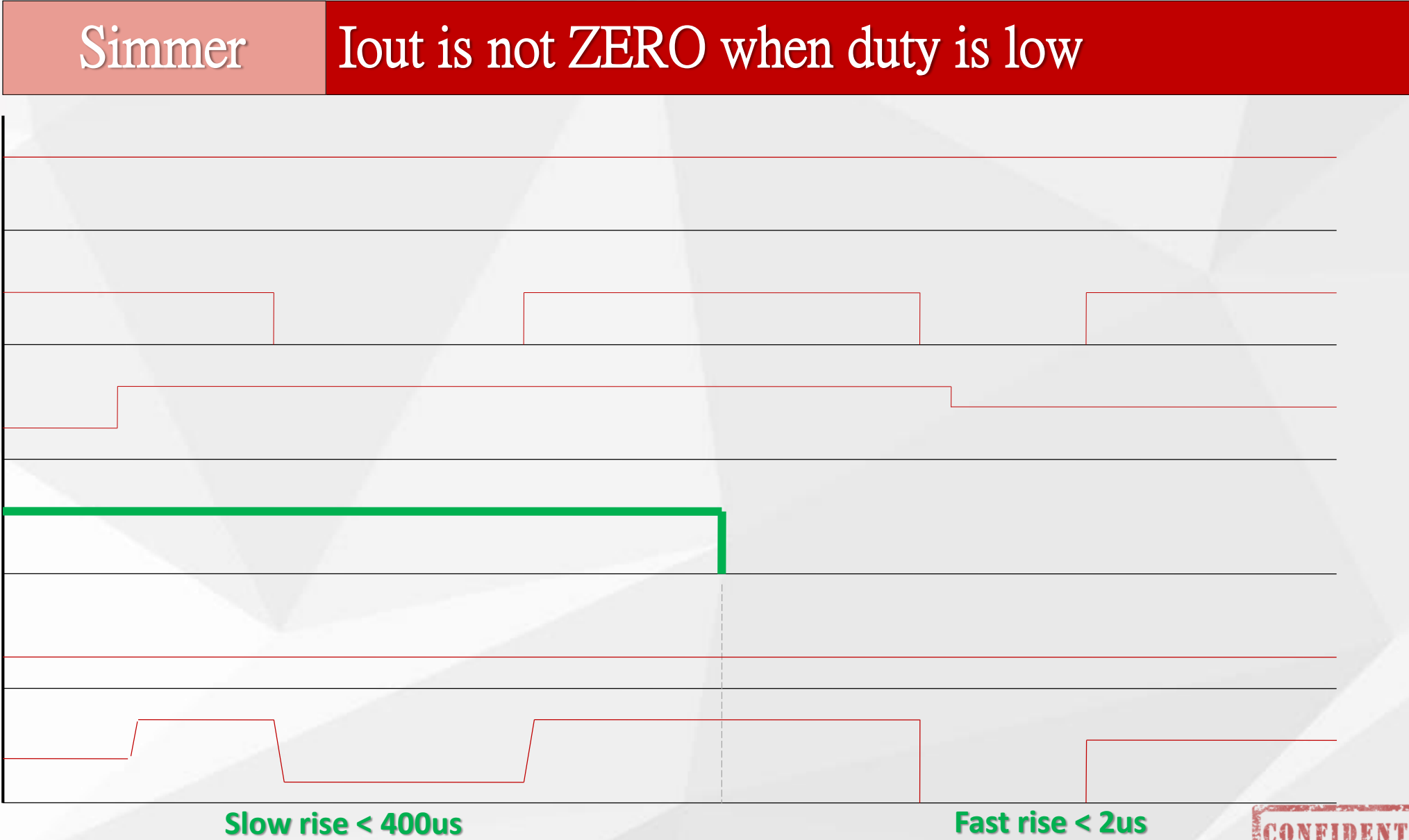
Function Description

I-Programme Iout current level modulation, 0V-10V → amplitude: 0% -100%

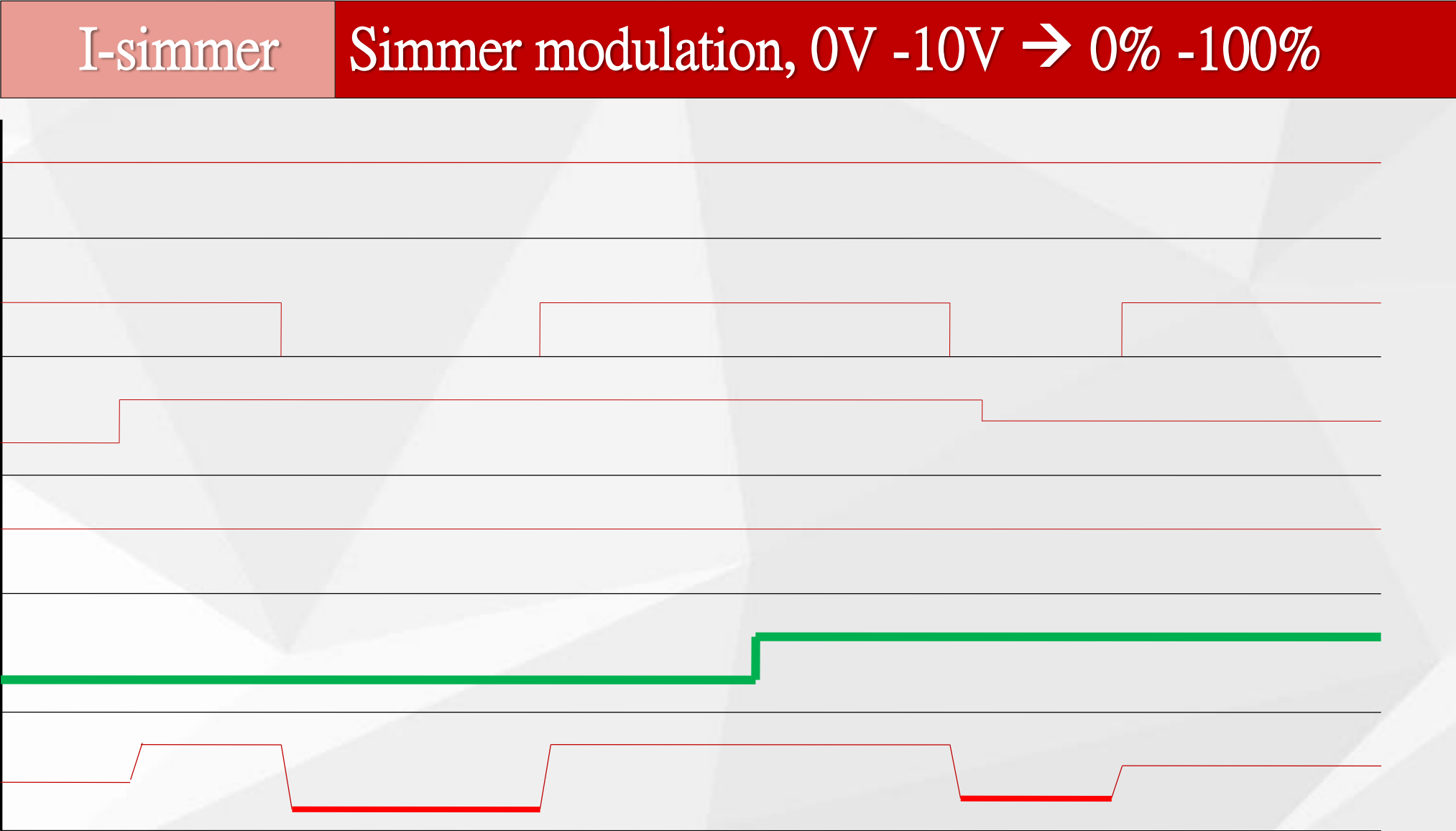


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Function Description



Function Description

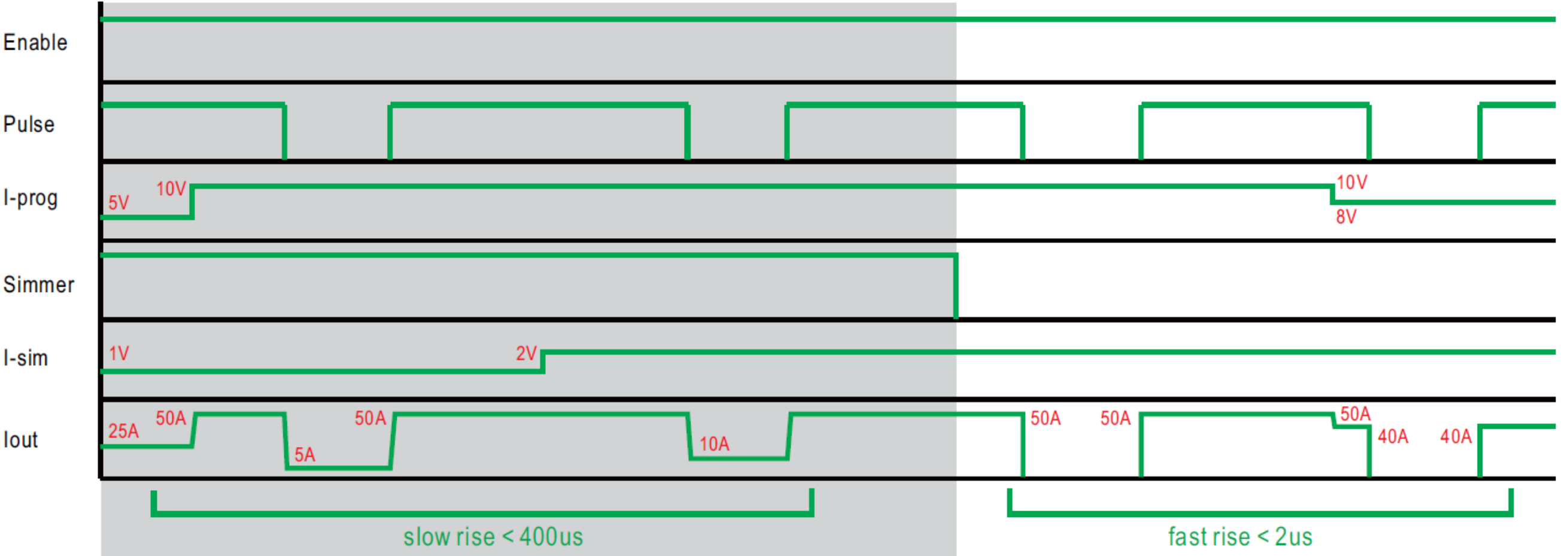


Slow rise < 400us

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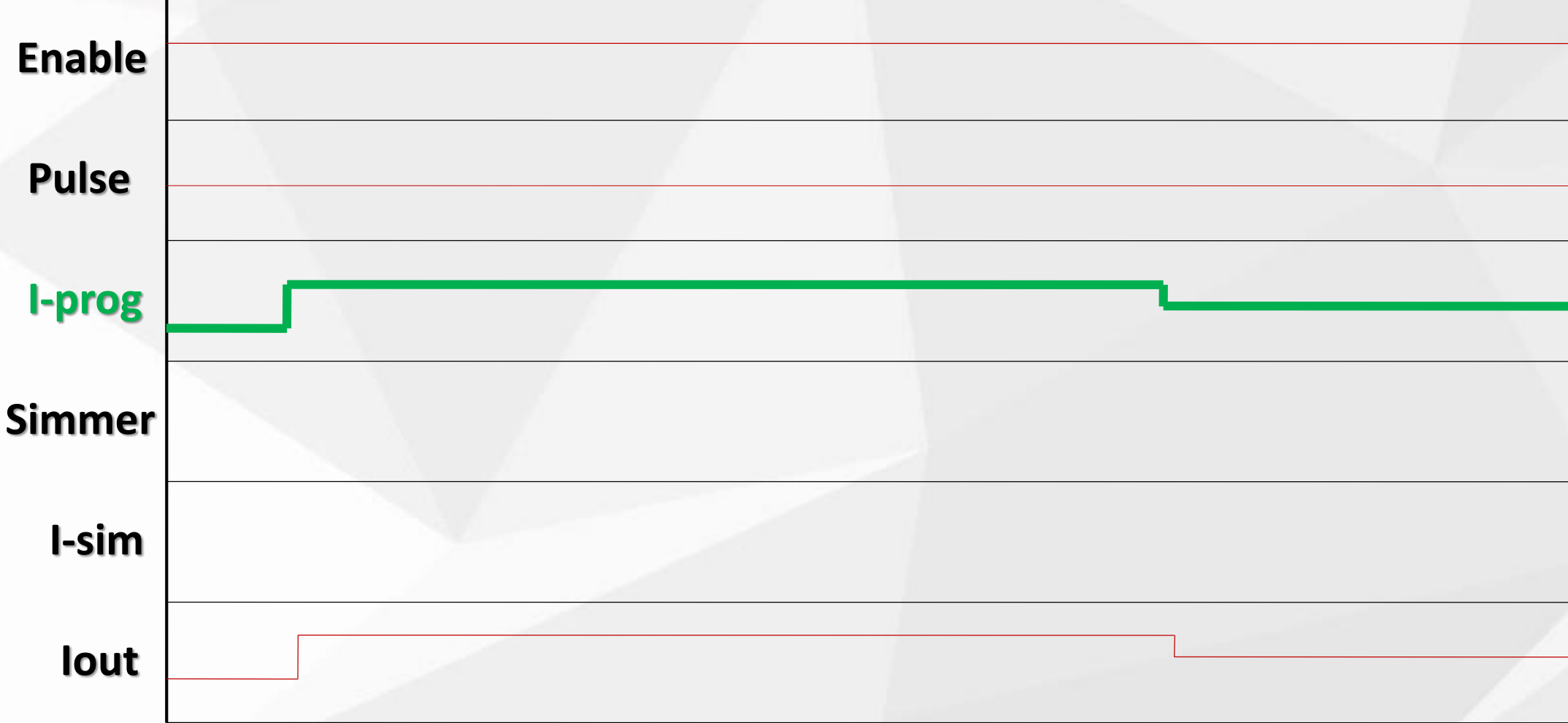
Function Description

Pulse Mode



Function Description

CW(Continuous Wave) Mode



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Thank you!

Q & A



Your Reliable Power Partner