

Intelligent Debugging of AC to DC Power Supply



Overview

This article briefly describes three oscilloscope-based packages for bringing up, debugging, and validating power converters such as AC-DC and DC-DC power supplies, as well as three-phase traction inverters and motor drives. Traditional power supply designs use analog ICs with fixed functionality to provide regulated power. This 2026 guide explores how benchtop oscilloscopes tackle these critical power. Integrated circuits (ICs) have dozens of pins and features like soft start, current limiting, pre-bias startup, and boot capacitors. Digital control of a power supply can be broken down into two perspectives, external communication and control of the power supply (On/Off, setting). The AC/DC power supply system of a substation is the core part to ensure the reliable operation of the substation, and the quality and efficiency of its debugging work directly affect the safe and stable power supply of the substation. This article conducts an in-depth study on the optimization of.



Article Content

Intelligent Power Supply Design Solutions

Today, power supply designers must create power conversion products that offer greater efficiency, higher power density, higher reliability, advanced communications and sophisticated control features.

AC-DC Power Supply Efficiency Testing for Regulatory Standards

Introduction AC to DC power supplies are fully integrated into our daily lives. They are the heart of all our electronics, providing energy for the everyday devices that we rely on. A cell phone charger is a

Introduction to DC Power Supply Debugging Techniques

1. Understand the basic parameters of DC power supply Before debugging a DC power supply, it is necessary to first understand its basic parameters, including output voltage, output

Power Supply Measurement Tips, Part 4 of 10: Digital

Explore Part 4 of our Power Supply Measurement Tips series. Learn how to debug digital and analog control circuits for proper compensation, timing,

GPT-12004 — 200 VA Electrical Safety Analyzer | GSAS India

Switch-mode power supply and DC-DC converter production — programmable ramp + 47 μ F capacitive load handles the input filter cap charge without tripping false fails. Motor-drive and inverter

Understanding AC/DC Power Supply | Article | MPS

An AC/DC power supply transforms AC into a stable DC voltage. Single-phase AC/DC systems are simpler, but three-phase AC/DC systems deliver more power

Benchtop Oscilloscope for Power Supply Debugging: Essential Tool

It provides detailed, real-time waveform visualization that multimeters simply cannot match, enabling precise debugging of AC/DC converters, switch-mode power supplies (SMPS), output ripple, and

Designing a Digital-controlled Power Supply

But those switching from analog control to a digital solution face new challenges where continuous signals are represented by a discrete format: 1 or 0. In this blog series, I'll provide a practical guide to

Intelligent Fault-Tolerant Control for AC/DC Hybrid

This paper presents a novel intelligent fault-tolerant control method for a kind of more electric aircraft AC/DC hybrid electrical power system, in order

Debugging power-supply startup issues

After input connections are verified, the easiest way to get started on the debugging process is with a multimeter or oscilloscope. A multimeter can be used to ensure the input voltage is being passed to

Power Conversion | Microchip Technology

Power Conversion Intelligent Power Supply Solutions Today, power supply designers must create power conversion products that offer greater efficiency, higher power

Debugging power-supply startup issues

Gone are the days where power supplies use simple pulse-width modulators (PWMs) with limited bells and whistles. Integrated circuits (ICs) have dozens of pins and features like soft start, current limiting,

Smart Buck Intelligent 12V DC-DC Converter

Smart Buck Intelligent 12V DC-DC Converter "Smart Buck" is a versatile open-source DC-DC buck converter PCB that includes the ability to

Smart Buck Intelligent DC-DC Converter

Smart Buck Intelligent DC-DC Converter Buck topology voltage converter with power monitoring functionality using the TI INA219 current sense IC. The provided

AC to DC Power Supply Design: A Comprehensive

Conclusion AC to DC power supply design is a critical aspect of electronics engineering, enabling the conversion of AC mains power to stable DC power

AC-to-DC Power Supplies

Microchip offers digital AC-DC power supply solutions that are fully programmable and support power flow control of advanced topologies.

Self-learning Controller Design for DC-DC Power Converters with ...

This article presents a promising self-learning-based robust control for output voltage tracking in DC-DC buck power converters, particularly for applications demanding high precision

Digital Control of Power Supplies

The controller on the primary side of AC-DC power supply monitors voltage and current changes depending on network and load condition and control power switching devices as part of the power

Oscilloscope-Based Analysis Tools Improve Power

This article briefly describes three oscilloscope-based packages for bringing up, debugging, and validating power converters such as AC-DC and DC-DC power

Intelligent DC Power Supply For Mobilephone Smartphone

AiXun Intelligent DC Power Supply is the perfect choice for a variety of applications. With its advanced smart chip, this product offers intelligent voltage and current control with real-time monitoring. It is

An intelligent adaptive control of DC-DC power buck converters

The ANN methodology adapts the controller with various changes and reflections of uncertainties in the microgrid. Case studies are conducted on a dc/dc buck converter in

How to design an accurate DC power supply

How to Design an Accurate DC Power Supply Shaury Anand Test and measurement applications like battery test, electrochemical impedance spectroscopy and semiconductor test require accurate

AC to DC Power Supply Design

Domestic and industrial AC supplies offer the most convenient energy source for powering electrical devices in applications where a lead connecting the

Digital Control of Power Supplies

STATE OF ART typical AC-DC power supply consists of building blocks using the most suitable technology depending on the power level along with required regulatory and industry compliance

Enhanced DC Voltage and Power Regulation Using Intelligent Data

Enhanced DC Voltage and Power Regulation Using Intelligent Data-Driven Control for AC/DC Converters in DC Microgrid Applications Published in: IEEE Transactions on Industry Applications (

Intelligent Power Supply Design Solutions

The board has an LCD display for voltage, current, temperature and fault conditions, and an integrated programmer/debugger, all powered by the included 9V power supply.

AC/DC Power Supply Design in 7 Steps | FSP

How to design a good AC/DC power supply? FSP provides the expert guide - from planning, sampling to trial verification and etc. Check the list for AC

Optimization of Debugging Methods for AC/DC Power Supply

This article conducts an in-depth study on the optimization of debugging methods for AC/DC power systems in substations. By analyzing the system composition and working principles, the process,

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