

RS 485 FAILSAFE BIASING OLD VERSUS NEW TRANSCEIVERS

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What is fail safe biasing RS-485? External idle-bus failsafe biasing Figure 1 shows an RS-485 bus with its distributed network nodes. If none of the drivers connected to the bus are active, the differential voltage (VAB) approaches zero, thus allowing the receivers to assume random output states.

What is RS-485 biasing? To ensure that the RS-485 line is in a defined state when all transmitters are off, we can use failsafe biasing on the line. The objective of biasing is to make sure that the RS-485 line remains in a known, non-fluctuating state when no devices are transmitting.

What is failsafe biasing of differential buses? Failsafe biasing refers to the technique of providing a differential voltage to a terminated, idle bus in order to maintain the receiver output of a bus transceiver in a logic-high state. This technique is commonly required when legacy transceiver designs are used for designing bus networks.

Does RS-485 need impedance matching? For optimal signal integrity, it is always best to match the differential-mode characteristic impedance of the cable with a termination of equal impedance.

What are the common problems with RS485? Common RS485 Problems and Solutions 1) Whether the detected waveform frequency is consistent with the sending frequency. Check whether the baud rate setting of the serial port assistant is consistent with the baud rate of the program serial port.

Does RS485 need shielding? RS485 needs 3 conductors and a shield. Many people say it's a two-wire network but it is not. Two conductors are used to carry the RS485 Differential voltage signal. The Shield is connected to earth/ground at one end only and provides shielding against induced noise.

Why is 120 ohm used in RS-485? Because RS-485 transceiver can both receive and transmit using the same device, it is common to place 120-ohms of termination at both end-points of the network, resulting in a total differential load of 60-ohms.

Does RS485 need a terminating resistor? In full-duplex configuration (RS-422 or RS-485 4-wire), there must be termination resistors on receiver sides of both master device and the furthest slave device.

What are the different types of RS485? Three arrangements are commonplace: Write only, 4-wire (full duplex) and 2-wire (half duplex). The "2-wire" RS-485 connection is shown below. RS485 half-duplex can use just two wires to communicate with up to 32 device, one at a time.

What is the difference between fail operational and fail-safe? Unlike fail-safe systems, which rely on human intervention during system failures, fail-operational systems must maintain continuous and reliable operation. They ensure autonomous vehicles can operate safely and reliably across all domains.

What is a failsafe receiver? A fail-safe circuit provides a known receiver output when a valid input signal is not present. Receivers without fail-safe will oscillate in response to input differential noise.

What is a fail-safe system? A fail safe system is one which, due to the characteristics of its equipment and components and the way in which they are integrated, is guaranteed that, in the event of any fault appearing, the system will always go to a safe status, normally affecting availability but never, and in no case, affecting safety.

What is a and b in RS-485? The RS485 standard specifies that the two terminals should be labeled A for negative and B for positive. However, device manufacturers may label the terminals differently, leading to confusion and incorrect connections. These differences in labeling can cause polarity issues and communication failures.

Does RS-485 require a twisted pair? You will not achieve the noise cancellation that RS-485 was intended to provide if you do not use twisted pair.

Is RS-485 synchronous or asynchronous? The RS232 and RS485 interfaces use asynchronous serial communication. This means that they utilize start and stop bits in order to know when information is being sent. This is a bit different from the synchronous data communication in which devices must be synchronized at first and then send data continuously.

What cable is best for RS-485? The most common cable type is Cat 5e-UTP (unshielded twisted pair) which may work over shorter distances in less demanding applications with low EMI noise levels. Be sure to use a wire pair such as the blue and blue/white pair for the data lines and a third wire or pair twisted together for the common connection.

Why is RS-485 limited to 32 devices? At low data rates, the maximum number of transceivers and receivers on an RS-485 bus has a practical limit imposed by the voltage seen by receivers in relation to their input threshold voltage. The input impedance of an RS-485 receiver is not fixed in the standard and can vary between parts.

What are the cons of RS-485? 2 RS485: The Multi-Point and Robust Protocol RS485 is fast (up to 10 Mbps), long-distance (up to 1200 meters), and noise-resistant, making it suitable for industrial and network applications. However, it also requires more complex wiring, termination, and addressing, and it cannot support full-duplex communication.

How many RS-485 devices can be on a single network? The theoretical limit = 256 devices that 1/8th load each. If you need to be certain and you do not know how much load the devices present then assume a full load and thus the maximum = 32 devices at full load. Most RS485 devices use off the shelf RS485 chips inside their devices.

Can RS-485 be daisy chained? Due to driver technology used for the RS-485 standard, daisy-chain wiring topology is the required method for device connection.

What is the proper wiring for RS-485? Ideally an RS485 system consists of a single linear cable (no branches) with 120 ohm resistors connected across the 2 wires at each end of the cable. RS485 can handle speeds of over 10 Mbits per second and line lengths of over 1 km.

What is fail safe RC? The fail safe is designed to prevent runaways when the receiver loses signal with the transmitter; either due to low battery signal, interference or the rc model being driven out of range.

What is fail safe mode in control valve? Actuated or automatic valves that revert to a pre-determined position after the actuating force is removed are referred to as "fail-safe" valves. The most common type is "fail-safe normally-closed." On the other hand, "fail-safe normally-open" valves are much less common, but are equally important.

What is a fail safe circuit? A circuit that has an output state which indicates that either a circuit input or the circuit itself has failed. Finds circuit application in complex systems where self-healing subsystems exist.

What is fail safe relay? DEFINITIONS. • Fail-safe is an output contact that is energized during normal relay operation and is de-energized when relay power is removed or if the relay fails. • Nonfail-safe is an output contact that is not energized during normal relay operation.

Discover the Intriguing World of Sidney Sheldon's "After the Darkness"

"After the Darkness" by the renowned Sidney Sheldon is a captivating thriller that explores the depths of human nature and the complexities of relationships. Here, we delve into the enigmatic world of this beloved novel through a Q&A format:

Q1: What is the central plot of "After the Darkness"? A1: The story revolves around Noelle Page, a successful businesswoman, who is diagnosed with a terminal illness. To make the most of her remaining time, she decides to seek revenge on those who have wronged her. The novel follows Noelle's journey as she manipulates and outwits her enemies, leading to unforeseen consequences.

Q2: Who are the main characters in the novel? A2: Noelle Page is the protagonist, a brilliant and determined woman who becomes the orchestrator of her own revenge plan. Jack Coleman, a detective, is tasked with investigating Noelle's suspicious activities. Other key characters include Teddy Stern, Noelle's unfaithful husband, and Kate Blackwell, her former lover.

Q3: What themes are explored in "After the Darkness"? A3: Sheldon's novel explores the complexities of human relationships, the nature of revenge, and the transformative power of adversity. It delves into themes of betrayal, forgiveness, and the search for justice.

Q4: What makes Sidney Sheldon's writing style unique? A4: Sheldon is known for his suspenseful storytelling, his strong and well-developed female characters, and his ability to create a sense of intrigue and urgency. He weaves together multiple storylines, keeping readers on the edge of their seats from beginning to end.

Q5: Where can I find an electronic copy of "After the Darkness"? A5: "After the Darkness" by Sidney Sheldon is widely available as an ebook on various online platforms, including Amazon, Google Play, and Apple Books. Readers can immerse themselves in Noelle Page's extraordinary journey from the comfort of their own devices.

Suzuki Swift 1.3 GLX Repair Manual: NuocOn

1. What is NuocOn?

NuocOn is a leading provider of aftermarket repair manuals for a wide range of vehicles, including the Suzuki Swift. These manuals provide step-by-step instructions, diagrams, and specifications to help owners and mechanics perform repairs and maintenance on their vehicles.

2. What is included in the NuocOn Suzuki Swift 1.3 GLX repair manual?

The NuocOn Suzuki Swift 1.3 GLX repair manual covers all aspects of the vehicle's repair and maintenance, including:

- Engine and transmission repair

- Brake and suspension systems
- Electrical system troubleshooting
- Bodywork and trim repairs
- Troubleshooting and diagnostics

3. Is the NuocOn repair manual suitable for DIY repairs?

Yes, the NuocOn repair manual is designed to be accessible to both professional mechanics and DIY enthusiasts. The instructions are written in clear and concise language, and the diagrams are easy to follow. However, it is always recommended to consult a qualified mechanic for complex repairs.

4. Where can I purchase the NuocOn Suzuki Swift 1.3 GLX repair manual?

The NuocOn Suzuki Swift 1.3 GLX repair manual is available for purchase from various online retailers, such as Amazon and eBay. It can also be purchased directly from NuocOn's website.

5. What are the benefits of using the NuocOn repair manual?

Using the NuocOn repair manual offers several benefits, including:

- Saves money on repair costs by allowing owners to perform repairs themselves
- Provides a comprehensive guide to all aspects of the vehicle's repair and maintenance
- Helps diagnose and troubleshoot problems accurately
- Empowers owners with the knowledge to maintain their vehicle efficiently

Stock and Watson Introduction to Econometrics Solutions

Introduction

"Introduction to Econometrics" by James H. Stock and Mark W. Watson is a widely-used textbook that provides a comprehensive grounding in econometrics. To aid students in understanding the concepts, the authors have compiled solutions to practice exercises and homework problems, known as "Stock and Watson

Question: Explain the concept of heteroskedasticity.

Answer: Heteroskedasticity occurs when the variance of the error term in a regression model is not constant. This means that the spread of the residuals around the regression line is not uniform, and can vary across observations.

Question: Calculate the standard error of the slope coefficient in a simple linear regression.

Answer: The standard error of the slope coefficient can be calculated as: $SE(b) = \sqrt{[(MSE)/((n-2)*s_x^2)]}$, where MSE is the mean squared error of the regression, n is the sample size, and s_x^2 is the variance of the independent variable.

Question: Test for serial correlation in a time series.

Answer: The Durbin-Watson test is used to test for serial correlation, or the presence of autocorrelation in a time series. It compares the sum of squared differences between two consecutive residuals with the sum of squared residuals overall.

Question: Explain the concept of multicollinearity.

Answer: Multicollinearity occurs when two or more independent variables in a regression model are highly correlated. This can lead to problems in interpreting the coefficients and can make it difficult to determine the true effects of each variable on the dependent variable.

Conclusion

Stock and Watson Introduction to Econometrics Solutions provide valuable resources for students learning econometrics. They offer step-by-step guidance on solving exercises and homework problems, helping to reinforce understanding of the concepts and techniques presented in the textbook. By utilizing these solutions, students can enhance their econometric skills and develop a deeper comprehension of the subject matter.

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