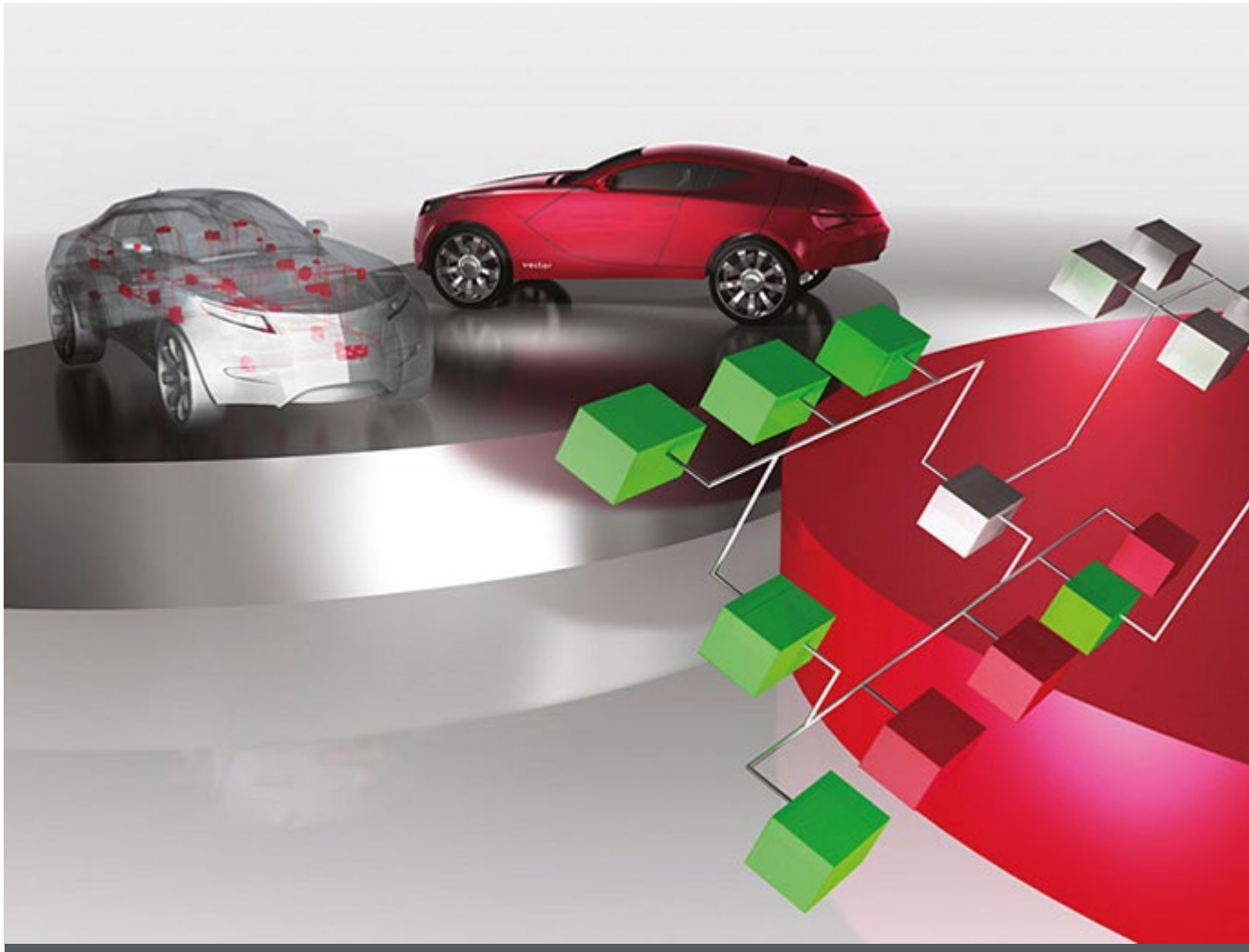
VECTOR



User Manual
VT System Calibration Test
Specification for the VT System Calibration Test

Version 1.3
English

Imprint

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Table of Contents

1 Introduction

This chapter contains the following information:

1.1 VT System Calibration Test at a Glance

Overview

This document contains one test specification for each of the currently available VT System modules. Each test is designed to cover all relevant hardware features The purpose of these tests is to verify that these features are working within the specified tolerance limits.

Test protocol structure

This test specification is accompanied by a test protocol in form of an Excel spreadsheet. This spreadsheet is structured as follows:

The first value column specifies the used value (e.g. **Stim. Voltage**) for stimulations. For measurements the first column specifies the value you should use (e.g. **Stim. Voltage**). The second column (e.g. **Act. Stim. Voltage**) contains the value you actually used. The first two columns for the potentiometer measurement of the VT2004 are different. This value can differ slightly based on the used equipment from the value you should use.

For deviation determination the actual value is used. The first of these columns specifies the used percentage the second column is for the external voltage value and depends therefore on the used external voltage supply (compare normal measurement above). The column **Tolerance** specifies the tolerance used for the calibration test. This value is often declared as ‘value A % + value B’. This is short for: “measured value * value A % + value B”. Value A is the relative deviation and value B is the absolute deviation based on the used full scale. The column **Max. deviation** states the allowed limits for the values. The column **Act. deviation** states the deviation of your actual measured value.

The last column **Result** states if your VT System module is working within the specified tolerance limits.. If no value is recorded it says ‘pending’.

Environmental conditions

All tests specified in this document are to be executed in the following temperature and air humidity ranges. This is required to get reliable and reproducible test results.

- Temperature range: 15 – 30°C
- Air humidity range: 30 - 70%

Recommended calibration period

In order to ensure that all your VT System modules operate within the specified tolerance limits we recommend to execute this calibration test suite on an annually basis.

1.2 About this User Manual

1.2.1 Navigational Aids and Conventions

To find information quickly

This user manual provides you with the following navigational aids:

- At the beginning of each chapter you will find a summary of the contents
- The header shows which chapter and paragraph you are located in
- The footer shows which version the user manual refers to

Conventions

The following two charts show the spelling and symbol conventions used in this manual.

Style	Utilization
bold	Fields, interface elements, window and dialog names in the software. Accentuation of warnings and notes. **[OK]** Buttons are denoted by square brackets **File** | **Save** Notation for menus and menu commands
CANoe	Legally protected proper names and side notes.
`Source code`	File name and source code.
Hyperlink	Hyperlinks and references.
<Ctrl>+<S>	Notation for shortcuts.

Symbol	Utilization
	You can obtain supplemental information here.
	This symbol calls your attention to warnings.
	You can find additional information here.
	Here is an example that has been prepared for you.
	Step-by-step instructions provide assistance at these points.
	Instructions on editing files are found at these points.
	This symbol warns you not to edit the specified file.

1.2.2 Latest Information

Additional technical information

You may find additional technical information about your VT System:

- in the CANoe online help,
- on the Vector website www.vector.com (e.g. application notes), and
- in your CANoe installation.

Reference: You may find the **latest version of this manual** in your CANoe installation (start menu ⇨ CANoe ⇨ Help).

1.2.3 Certification

Certified quality management system

Vector Informatik GmbH has ISO 9001:2008 certification.
The ISO standard is a globally recognized quality standard.

CE compliance

All VT System products comply with CE regulations.

1.2.4 Warranty

Limitation of warranty

We reserve the right to change the contents of the documentation and the software as well as the hardware design without notice. Vector Informatik GmbH assumes no liability for correct contents or damages which are resulted from the usage of the technical user manual. We are always grateful for references to mistakes or for suggestions for improvement, so as to be able to offer you even better-performing products in the future.

1.2.5 Support

Need support?

You can get through to our hotline by calling

+49 (711) 80670-200

or you can send a problem report to CANoe Support.

1.2.6 Registered Trademarks

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- Altera® and Quartus® are registered trademarks of Altera Corporation.

2 VT1004

This chapter contains the following information:

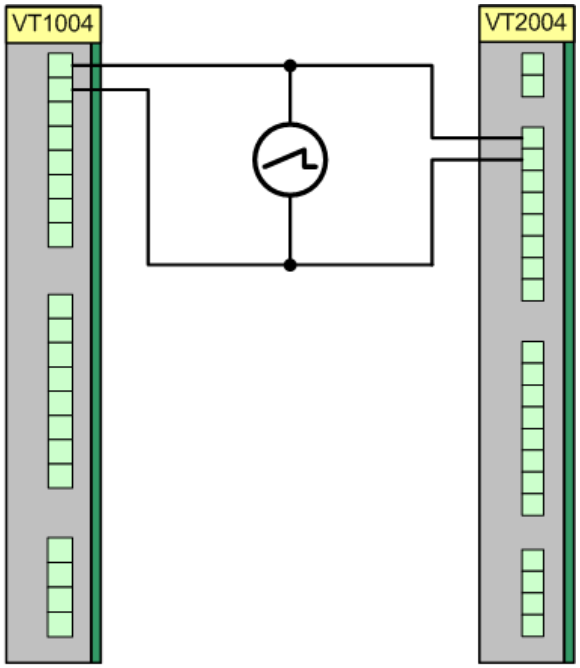
2.1 Voltage Measurement

Requirements

In addition to the VT1004 a stimulation module and a measurement device (e.g. oscilloscope) is required. The stimulation module can be any of the following: VT2004, VT2516 or VT2816. You also need a connector to interconnect the VT1004 channel under test with the stimulation module's output channel and the measurement device.

Test setup

Connect the stimulation module's output channel to the VT1004 measurement channel. Also connect the stimulation channel to the measurement device. The following illustration shows this setup:



Example of voltage measurement at channel 1. A VT2004 is used for stimulation.

Test execution

Repeat the following steps for each of the VT1004 measurement channels and each of the voltages specified in the test protocol.

- > Configure the stimulation channel for voltage output via the VT System Control window.
- > Make sure the stimulated voltage is measured correctly by the connected measurement device.
- > Connect the current measurement channel to the stimulation channel as described above.
- > Configure the measurement channel in the VT System Control window. The stimulated voltage should be measured correctly here, too.
- > Enter the exact stimulated voltage (measured by the oscilloscope) and the measured voltage into the test protocol. The protocol will automatically indicate if the measured value is within the permitted tolerance range.

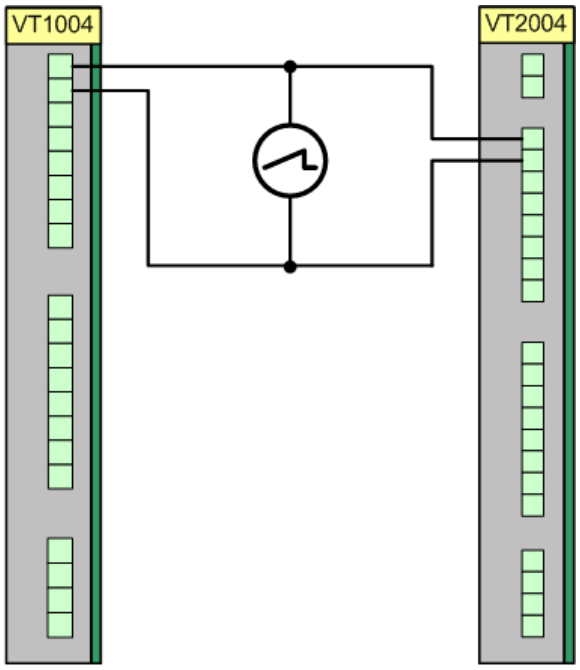
2.2 PWM Measurement

Requirements

In addition to the VT1004 a stimulation module and a measurement device (e.g. oscilloscope) is required. The stimulation module can be any of the following: VT2004 or VT2516. You also need a connector to interconnect the VT1004 channel under test with the stimulation module's output channel and the measurement device.

Test setup

Connect the stimulation module's output channel to the VT1004 measurement channel. Also connect the stimulation channel to the measurement device. The following illustration shows this setup:



Example of PWM measurement at channel 1. A VT2004 is used for stimulation.

Test execution

Repeat the following steps for each of the VT1004 measurement channels and each of the frequencies/duty cycles specified in the test protocol (use 1 kHz when testing the duty cycle).

- Configure the stimulation channel for PWM output via the VT System Control window. Use PWM low and high voltages of 0V and 5V.
- Make sure the stimulated PWM frequency and duty cycle is measured correctly by the connected measurement device.
- Connect the measurement channel to the stimulation channel as described above.
- Configure the measurement channel in the VT System Control window. The stimulated signal should be measured correctly here, too.
- Enter the exact stimulated frequency/duty cycle (measured by the oscilloscope) and the measured frequency/duty cycle into the test protocol. The protocol will automatically indicate if the measured value is within the permitted tolerance range.

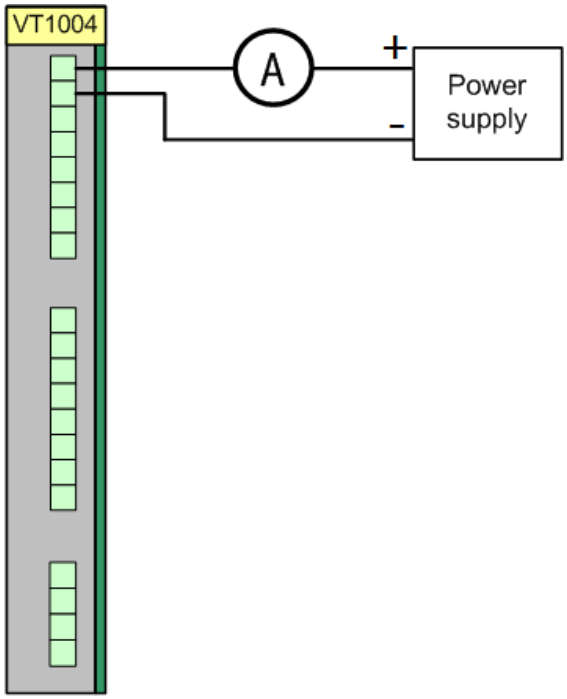
2.3 Electronic Load

Requirements

In addition to the VT1004 a stimulation module, a power supply (min. 2A) and an ampere meter is required. You also need a connector to interconnect the VT1004 channel under test with the power supply's output and the ampere meter.

Test setup

Connect the power supply's output to the VT1004 measurement channel through the ampere meter. The following illustration shows this setup:



Example for the electronic load on channel 1.

Test execution

Repeat the following steps for each of the VT1004 measurement channels and each of the currents: specified in the test protocol.

> Configure the power supply to generate a voltage of 12V.

> Connect the currently tested load channel to the power supply as described above.

> Configure the load channel's internal electronic load in the VT System Control window.

> Enter the current measured by the ampere meter into the test protocol. The protocol will automatically indicate if the measured value is within the permitted tolerance range.

3 VT1004A

This chapter contains the following information:

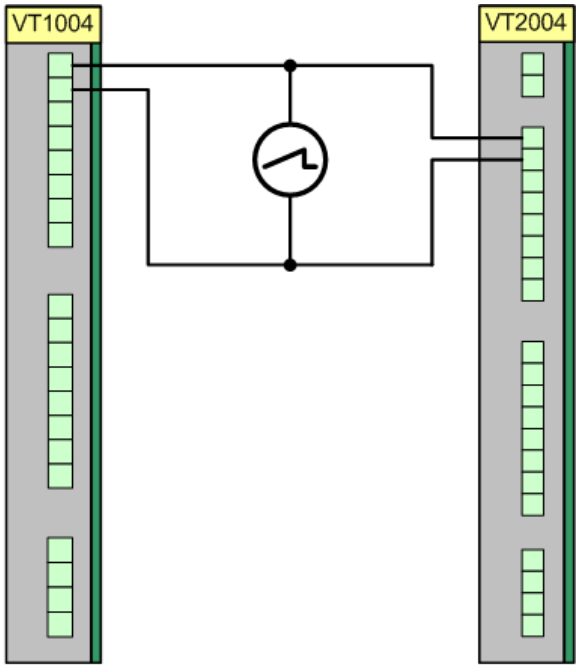
3.1 Voltage Measurement

Requirements

In addition to the VT1004A a stimulation module and a measurement device (e.g. oscilloscope) is required. The stimulation module can be any of the following: VT2004, VT2516 or VT2816. You also need a connector to interconnect the VT1004A channel under test with the stimulation module's output channel and the measurement device.

Test setup

Connect the stimulation module's output channel to the VT1004A measurement channel. Also connect the stimulation channel to the measurement device. The following illustration shows this setup:



Example of voltage measurement at channel 1. A VT2004 is used for stimulation.

Test execution

Repeat the following steps for each of the VT1004A measurement channels and each of the voltages specified in the test protocol.

- Configure the stimulation channel for voltage output via the VT System Control window.
- Set the channel's impedance mode to high impedance.
- Make sure the stimulated voltage is measured correctly by the connected measurement device.
- Connect the current measurement channel to the stimulation channel as described above.
- Configure the measurement channel in the VT System Control window. The stimulated voltage should be measured correctly here, too.
- Enter the exact stimulated voltage (measured by the oscilloscope) and the measured voltage into the test protocol. The protocol will automatically indicate if the measured value is within the permitted tolerance range.

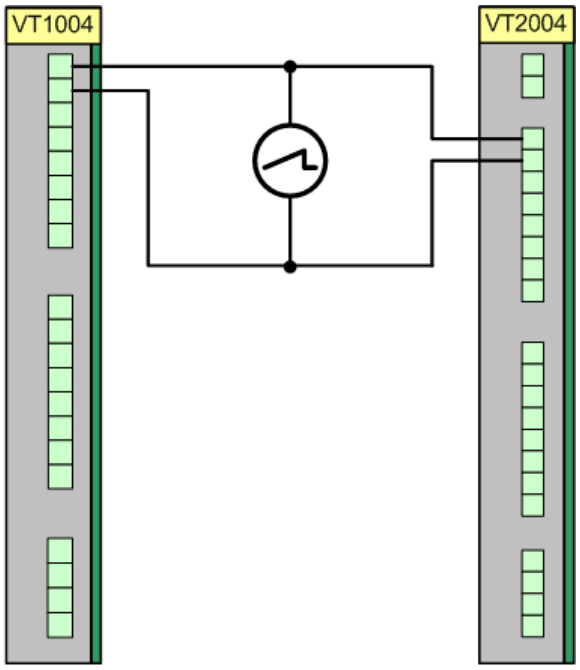
3.2 PWM Measurement

Requirements

In addition to the VT1004A a stimulation module and a measurement device (e.g. oscilloscope) is required. The stimulation module can be any of the following: VT2004 or VT2516. You also need a connector to interconnect the VT1004A channel under test with the stimulation module's output channel and the measurement device.

Test setup

Connect the stimulation module's output channel to the VT1004A measurement channel. Also connect the stimulation channel to the measurement device. The following illustration shows this setup:



Example of PWM measurement at channel 1. A VT2004 is used for stimulation.

Test execution

Repeat the following steps for each of the VT1004A measurement channels and each of the frequencies/duty cycles specified in the test protocol (use 1 kHz when testing the duty cycle).

- Configure the stimulation channel for PWM output via the VT System Control window. Use PWM low and high voltages of 0V and 5V.
- Set the channel's impedance mode to low impedance.
- Make sure the stimulated PWM frequency and duty cycle is measured correctly by the connected measurement device.
- Connect the measurement channel to the stimulation channel as described above.
- Configure the measurement channel in the VT System Control window. The stimulated signal should be measured correctly here, too.
- Enter the exact stimulated frequency/duty cycle (measured by the oscilloscope) and the measured frequency/duty cycle into the test protocol. The protocol will automatically indicate if the measured value is within the permitted tolerance range.

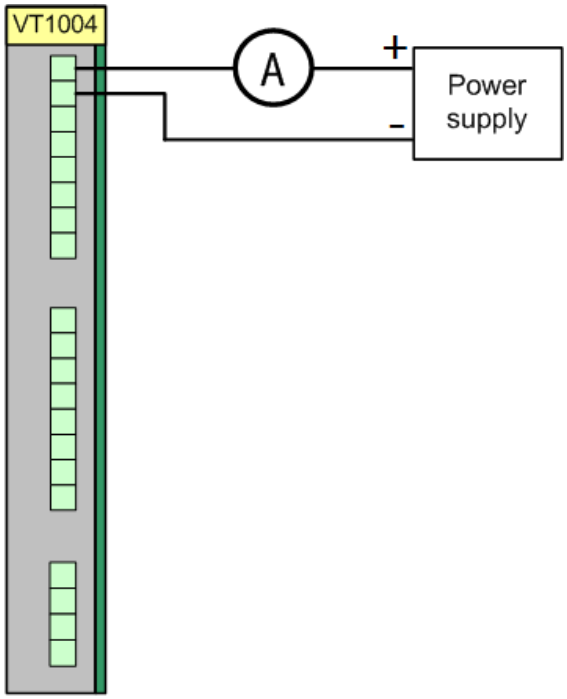
3.3 Electronic Load

Requirements

In addition to the VT1004A a stimulation module, a power supply (min. 2A) and an ampere meter is required. You also need a connector to interconnect the VT1004A channel under test with the power supply's output and the ampere meter.

Test setup

Connect the power supply's output to the VT1004A measurement channel through the ampere meter. The following illustration shows this setup:



Example for the electronic load on channel 1.

Test execution

Repeat the following steps for each of the VT1004A measurement channels and each of the currents: specified in the test protocol.

> Configure the power supply to generate a voltage of 12V.

> Connect the currently tested load channel to the power supply as described above.

> Configure the load channel's internal electronic load in the VT System Control window.

> Enter the current measured by the ampere meter into the test protocol. The protocol will automatically indicate if the measured value is within the permitted tolerance range.

4 VT2004

This chapter contains the following information:

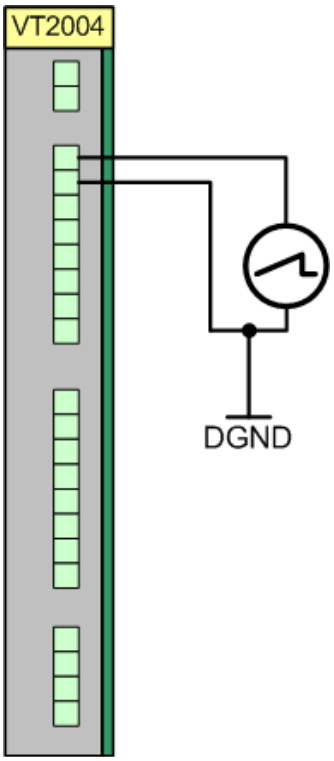
4.1 Voltage Stimulation

Requirements

In addition to the VT2004 a measurement device (e.g. oscilloscope) is required. You also need a connector to interconnect the VT2004 channel under test with the measurement device.

Test setup

Connect the stimulation channel to the measurement device. The following illustration shows this setup:



Example of voltage stimulation at channel 1.

Test execution

Repeat the following steps for each of the VT2004 stimulation channels and each of the voltages specified in the test protocol.

> Configure the stimulation channel for voltage output via the VT System Control window.

> Make sure the stimulated voltage is measured correctly by the connected measurement device.

> Enter the exact stimulated voltage (measured by the oscilloscope) into the test protocol. The protocol will automatically indicate if the measured value is within the permitted tolerance range.

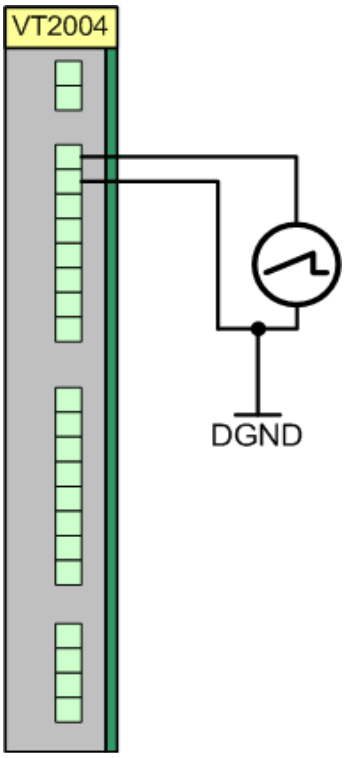
4.2 PWM Stimulation

Requirements

In addition to the VT2516 a measurement device (e.g. oscilloscope) is required. You also need a connector to interconnect the VT2516 channel under test with the measurement device.

Test setup

Connect the stimulation channel to the measurement device. The following illustration shows this setup:



Example of PWM stimulation at channel 1.

Test execution

Repeat the following steps for each of the VT2004 stimulation channels and each of the frequencies/duty cycles (use 1 kHz when testing the duty cycle).

> Configure the stimulation channel for PWM output via the VT System Control window.

> Make sure the stimulated PWM frequency and duty cycle is measured correctly by the connected measurement device.

> Enter the exact stimulated frequency/duty cycle (measured by the oscilloscope) into the test protocol. The protocol will automatically indicate if the measured value is within the permitted tolerance range.

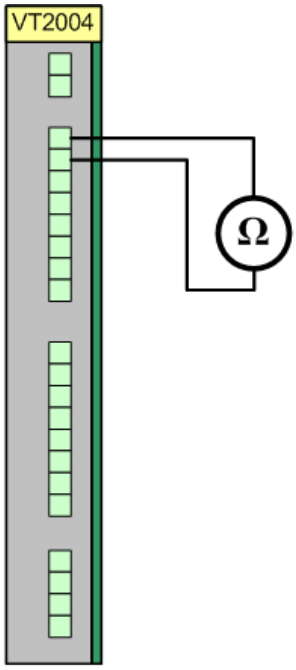
4.3 Decade Resistor

Requirements

In addition to the VT2004 a measurement device (ohmmeter) is required. You also need a connector to interconnect the VT2004 channel under test with the measurement device.

Test setup

Connect the ohmmeter the VT2004 decade resistor channel. The following illustration shows this setup:



Example of decade resistor stimulation at channel 1.

Test execution

Repeat the following steps for each of the VT2004 measurement channels and each of the resistor values: specified in the test protocol.

> Configure the decade resistor in the VT System Control window.

> Connect the currently tested decade resistor channel to the measurement device as described above.

> Enter the resistor value measured by the ohmmeter into the test protocol. The protocol will automatically indicate if the measured value is within the permitted tolerance range.

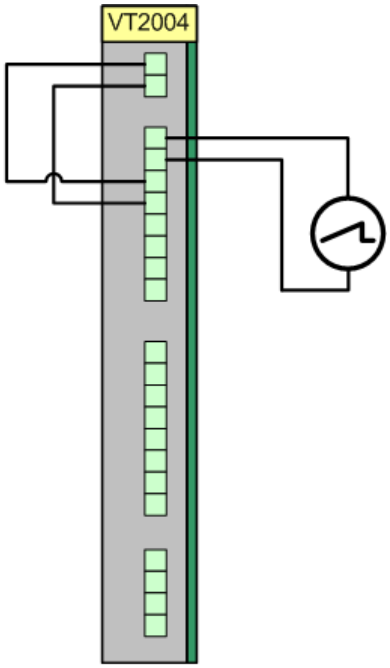
4.4 Potentiometer

Requirements

In addition to the VT2004 a measurement device is required. You also need a connector to interconnect the VT2004 channel under test with the measurement device.

Test setup

Connect the measurement device to channel 1 of the VT2004. The following illustration shows this setup:



Example of potentiometer stimulation at channel 1.

Test execution

Repeat the following steps for each of the potentiometer values specified in the test protocol.

> Configure the stimulation device (e.g. another channel of the VT2004). A voltage of 12V is recommended for this test. Make sure the stimulated voltage is correct.

> Configure the potentiometer in the VT System Control window.

> Connect channel 1 to the measurement device as described above.

> Enter the voltage value measured by the measurement device into the test protocol. The protocol will automatically indicate if the measured value is within the permitted tolerance range.

5 VT2516

This chapter contains the following information:

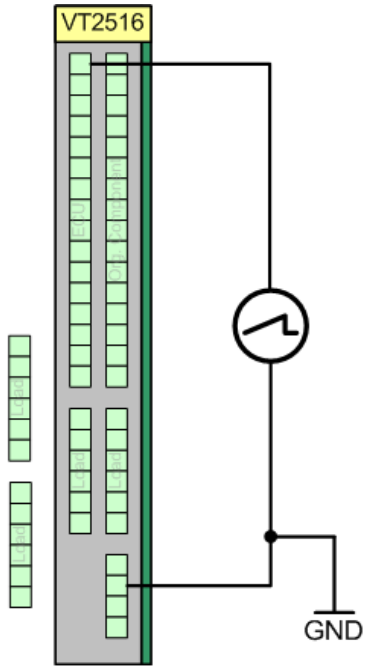
5.1 Voltage Stimulation

Requirements

In addition to the VT2516 a measurement device (e.g. oscilloscope) is required. You also need a connector to interconnect the VT2516 channel under test with the measurement device.

Test setup

Connect the stimulation channel to the measurement device. The following illustration shows this setup:



Example of voltage stimulation at channel 1.

Test execution

Repeat the following steps for each of the VT2516 stimulation channels and each of the voltages specified in the test protocol.

> Configure the stimulation channel for voltage output via the VT System Control window.

> Make sure the stimulated voltage is measured correctly by the connected measurement device.

> Enter the exact stimulated voltage (measured by the oscilloscope) into the test protocol. The protocol will automatically indicate if the measured value is within the permitted tolerance range.

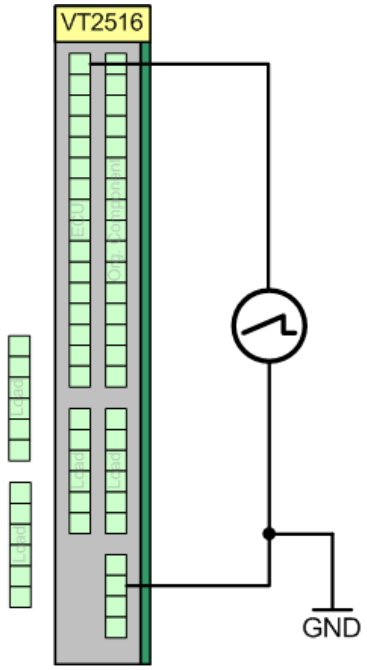
5.2 PWM Stimulation

Requirements

In addition to the VT2516 a measurement device (e.g. oscilloscope) is required. You also need a connector to interconnect the VT2516 channel under test with the measurement device.

Test setup

Connect the stimulation channel to the measurement device. The following illustration shows this setup:



Example of PWM stimulation at channel 1.

Test execution

Repeat the following steps for each of the VT2516 stimulation channels and each of the frequencies/duty cycles specified in the test protocol (use 1 kHz when testing the duty cycle).

> Configure the stimulation channel for PWM output via the VT System Control window.

> Make sure the stimulated PWM frequency and duty cycle is measured correctly by the connected measurement device.

> Enter the exact stimulated frequency/duty cycle (measured by the oscilloscope) into the test protocol. The protocol will automatically indicate if the measured value is within the permitted tolerance range.

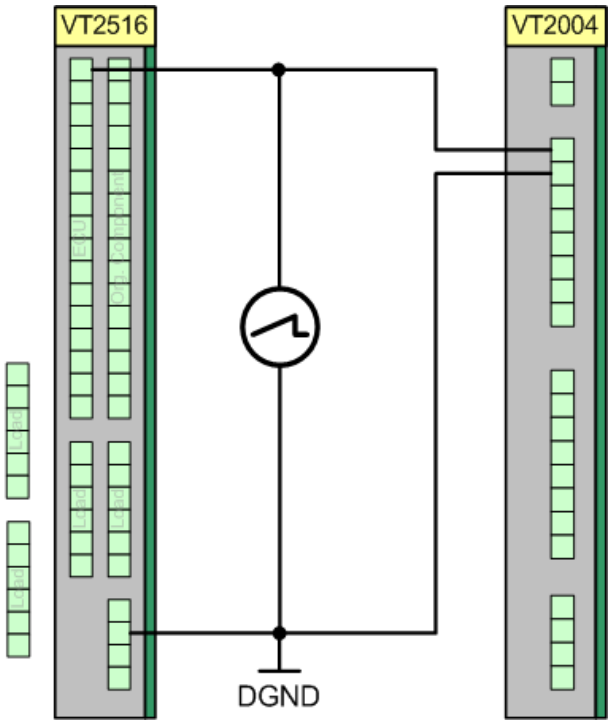
5.3 Voltage Measurement

Requirements

In addition to the VT2516 a stimulation module and a measurement device (e.g. oscilloscope) is required. The stimulation module can be any of the following: VT2004, VT2516 or VT2816. You also need a connector to interconnect the VT2516 channel under test with the stimulation module's output channel and the measurement device.

Test setup

Connect the stimulation module's output channel to the VT2516 measurement channel. Also connect the stimulation channel to the measurement device. The following illustration shows this setup:



Example of voltage measurement at channel 1.

Test execution

Repeat the following steps for each of the VT2516 measurement channels and each of the voltages: -specified in the test protocol.

> Configure the stimulation channel for voltage output via the VT System Control window.

> Make sure the stimulated voltage is measured correctly by the connected measurement device.

> Connect the current measurement channel to the stimulation channel as described above.

> Configure the measurement channel in the VT System Control window. The stimulated voltage should be measured correctly here, too.

> Enter the exact stimulated voltage (measured by the oscilloscope) and the measured voltage into the test protocol. The protocol will automatically indicate if the measured value is within the permitted tolerance range.

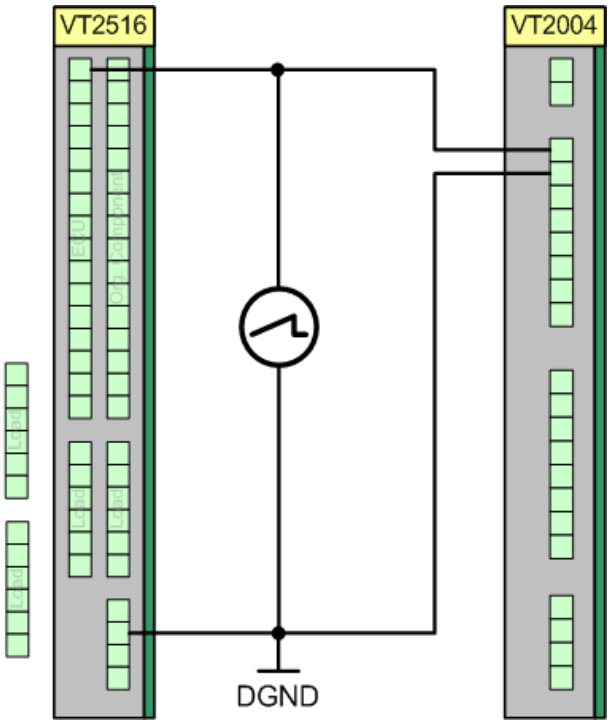
5.4 PWM Measurement

Requirements

In addition to the VT2516 a stimulation module and a measurement device (e.g. oscilloscope) is required. The stimulation module can be any of the following: VT2004 or VT2516. You also need a connector to interconnect the VT2516 channel under test with the stimulation module's output channel and the measurement device.

Test setup

Connect the stimulation module's output channel to the VT2516 measurement channel. Also connect the stimulation channel to the measurement device. The following illustration shows this setup:



Example of PWM measurement at channel 1.

Test execution

Repeat the following steps for each of the VT2516 measurement channels and each of the frequencies/duty cycles specified in the test protocol (use 1 kHz when testing the duty cycle).

- > Configure the stimulation channel for PWM output via the VT System Control window.
- > Make sure the stimulated PWM frequency and duty cycle is measured correctly by the connected measurement device.
- > Connect the measurement channel to the stimulation channel as described above.
- > Configure the measurement channel in the VT System Control window. The stimulated signal should be measured correctly here, too.
- > Enter the exact stimulated frequency/duty cycle (measured by the oscilloscope) and the measured frequency/duty cycle into the test protocol. The protocol will automatically indicate if the measured value is within the permitted tolerance range.

6 VT2816

This chapter contains the following information:

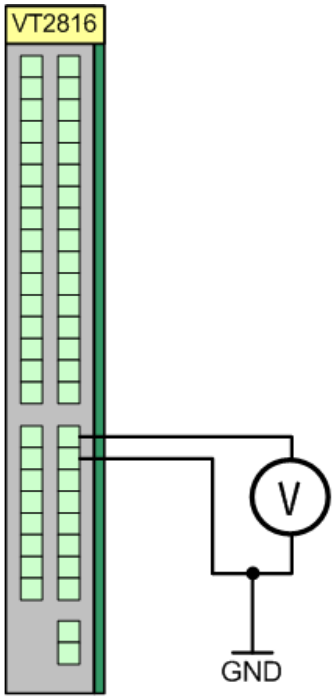
6.1 Voltage Stimulation

Requirements

In addition to the VT2816 a measurement device (e.g. oscilloscope) is required. You also need a connector to interconnect the VT2816 channel under test with the measurement device.

Test setup

Connect the stimulation channel to the measurement device. The following illustration shows this setup:



Example of voltage stimulation at channel 13.

Test execution

Repeat the following steps for each of the VT2816 stimulation channels (channels 13-16) and each of the voltages specified in the test protocol. Remember to set the voltage range as specified in the test protocol, too.

> Configure the stimulation channel for voltage output via the VT System Control window.

> Make sure the stimulated voltage is measured correctly by the connected measurement device.

> Enter the exact stimulated voltage (measured by the oscilloscope) into the test protocol. The protocol will automatically indicate if the measured value is within the permitted tolerance range.

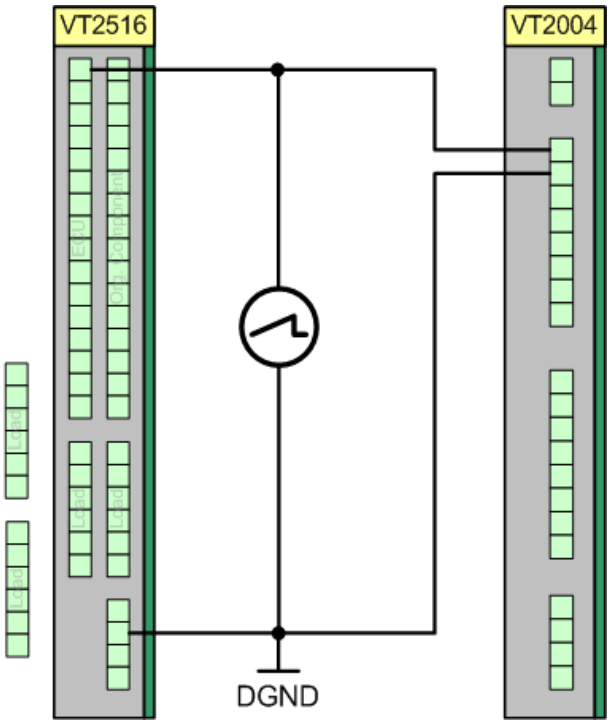
6.2 Voltage Measurement

Requirements

In addition to the VT2816 a stimulation module and a measurement device (e.g. oscilloscope) is required. The VT2816 can be used as stimulation module for the test. You also need a connector to interconnect the VT2816 channel under test with the stimulation module's output channel and the measurement device.

Test setup

Connect the stimulation module's output channel to the VT2816 measurement channel. Also connect the stimulation channel to the measurement device. The following illustration shows this setup:



Example of voltage measurement at channel 1.

Test execution

Repeat the following steps for each of the voltages specified in the test protocol. Remember to set the voltage range as specified in the test protocol, too.

- > Configure the stimulation channel for voltage output via the VT System Control window.
- > Make sure the stimulated voltage is measured correctly by the connected measurement device.
- > Connect the voltage measurement channel to the stimulation channel as described above.
- > Configure the measurement channel in the VT System Control window. The stimulated voltage should be measured correctly here, too.
- > Enter the exact stimulated voltage (measured by the oscilloscope) and the measured voltage into the test protocol. The protocol will automatically indicate if the measured value is within the permitted tolerance range.

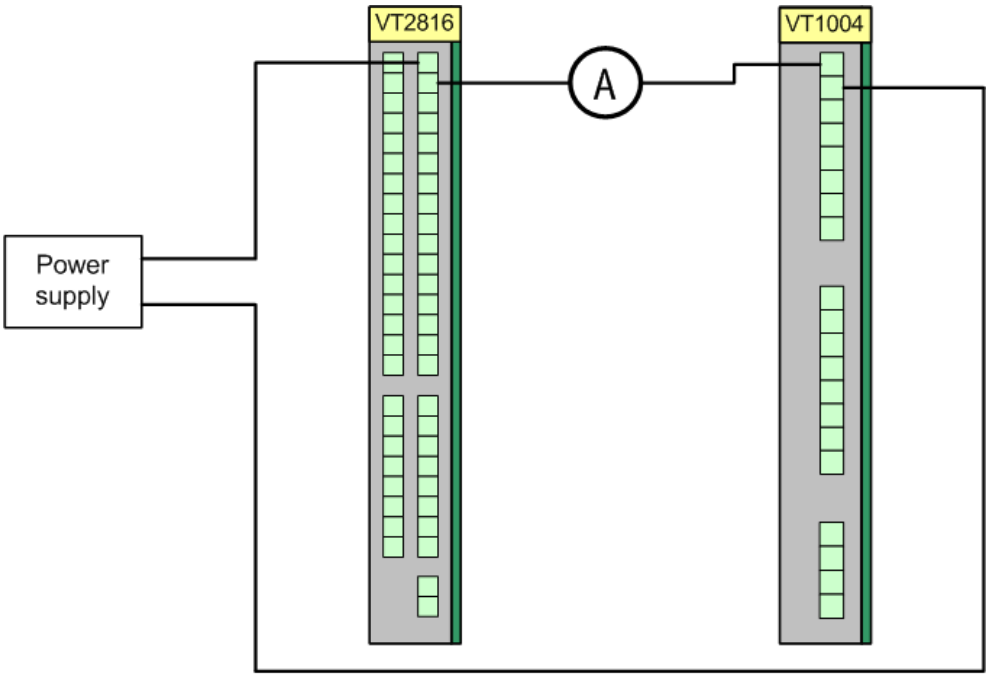
6.3 Current Measurement

Requirements

In addition to the VT2816 a current measurement device, a VT1004 and a power supply is required. You can use an external device or a VT7001 as power supply. You also need a connector to interconnect the VT2816 channel under test with the measurement device, the VT1004 and the power supply.

Test setup

Connect the stimulation channel to the measurement device. The following illustration shows this setup:



Example of current measurement at channel 1.

Test execution

Repeat the following steps for both of the VT2816 stimulation channels and each of the current values specified in the test protocol.

> Configure the measurement channel of the VT2816 via the VT System Control window.

> Configure the electronic load of the VT1004 via the VT System Control window.

> Configure the VT7001 via the VT System Control window or the external power supply.

> Connect the output of the power supply to the current measurement channel. Then connect the current measurement channel to the measurement device and the electronic load as described above.

> Make sure the stimulated current is measured correctly by the connected measurement device.

> Enter the exact stimulated current (measured by the measurement device) and the measured current into the test protocol. The protocol will automatically indicate if the measured value is within the permitted tolerance range.

7 VT2848

This chapter contains the following information:

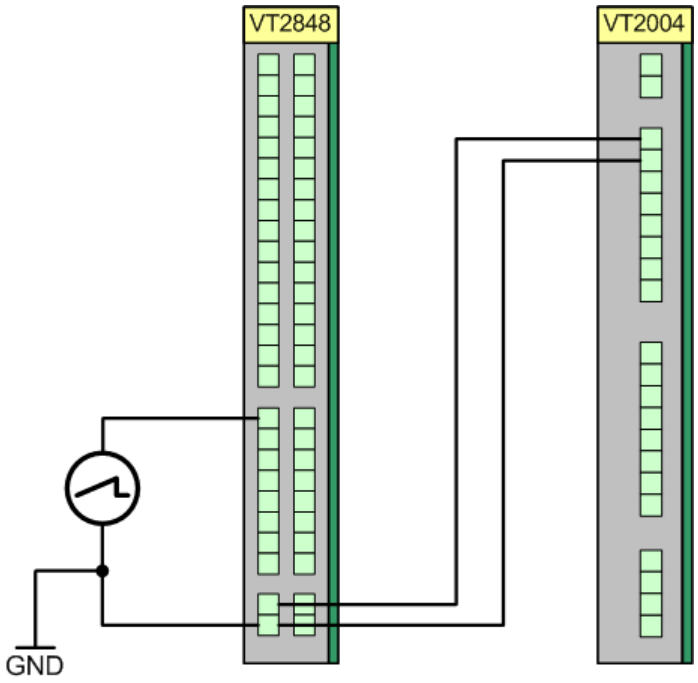
7.1 PWM Stimulation

Requirements

In addition to the VT2848 a measurement device (e.g. oscilloscope) is required. You also need a connector to interconnect the VT2848 channel under test with the measurement device. It should be remembered that the VT2848 needs a separate external power supply for the voltage stimulation.

Test setup

Connect the stimulation channel to the measurement device. The following illustration shows this setup:



Example of PWM stimulation at channel 33 with a VT2004 as power supply.

Test execution

Repeat the following steps for each of the VT2848 stimulation channels (33-48) and each of the frequencies/duty cycles specified in the test protocol. Use 12V supply and perform the duty cycle tests at 100 kHz.

> Configure the stimulation channel for PWM output via the VT System Control window.

> Make sure the stimulated PWM frequency and duty cycle is measured correctly by the connected measurement device.

> Enter the exact stimulated frequency/duty cycle (measured by the oscilloscope) into the test protocol. The protocol will automatically indicate if the measured value is within the permitted tolerance range.

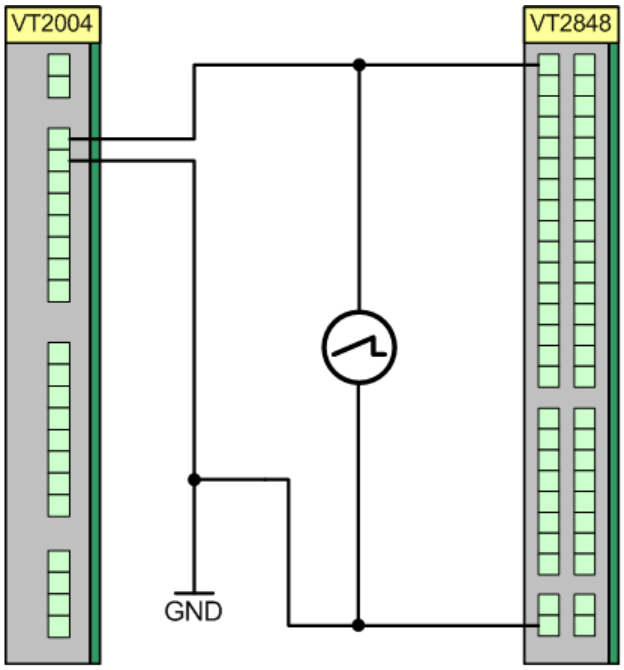
7.2 PWM Measurement

Requirements

In addition to the VT2848 a stimulation module and a measurement device (e.g. oscilloscope) is required. The VT2848 can be used for the stimulation. You also need a connector to interconnect the VT2848 channel under test with the stimulation module's output channel and the measurement device.

Test setup

Connect the stimulation module's output channel to the VT2848 measurement channel. Also connect the stimulation channel to the measurement device. The following illustration shows this setup:



Example of PWM measurement at channel 1 with a VT2004 as stimulation channel.

Test execution

Repeat the following steps for each of the VT2848 measurement channels (1-16) and each of the frequencies/duty cycles specified in the test protocol (use 100 kHz for the duty cycle test).

> Configure the stimulation channel for PWM output via the VT System Control window.

> Make sure the stimulated PWM frequency and duty cycle is measured correctly by the connected measurement device.

> Connect the measurement channel to the stimulation channel as described above.

> Configure the measurement channel in the VT System Control window. The stimulated signal should be measured correctly here, too.

> Enter the exact stimulated frequency/duty cycle (measured by the oscilloscope) and the measured frequency/duty cycle into the test protocol. The protocol will automatically indicate if the measured value is within the permitted tolerance range.

8 VT7001

This chapter contains the following information:

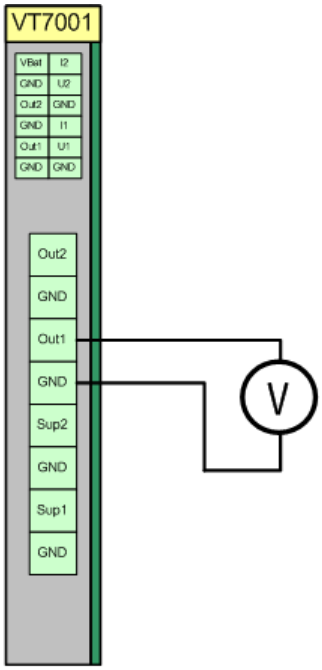
8.1 Voltage Stimulation with the Internal Power Supply

Requirements

In addition to the VT7001 a measurement device (e.g. oscilloscope) is required. You also need a connector to interconnect the VT7001 channel under test with the measurement device.

Test setup

Connect the stimulation channel to the measurement device. The following illustration shows this setup:



Example of voltage stimulation at channel 1 with the internal supply.

Test execution

Repeat the following steps for each of the VT7001 stimulation channels and each of the voltages specified in the test protocol.

> Configure the output channel for voltage output via the VT System Control window.

> Make sure the stimulated voltage is measured correctly by the connected measurement device.

> Enter the exact stimulated voltage (measured by the oscilloscope) into the test protocol. The protocol will automatically indicate if the measured value is within the permitted tolerance range.

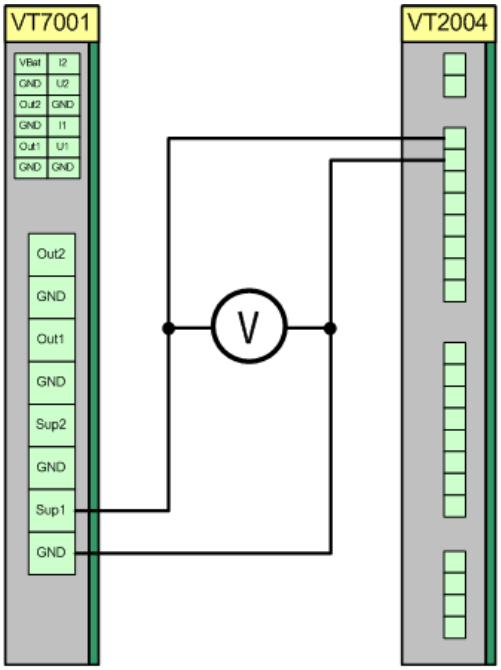
8.2 Voltage Measurement

Requirements

In addition to the VT7001 an external power supply and a measurement device (e.g. oscilloscope) is required. The following modules could be used as power supply: VT2004, VT2516 or VT2816. You also need a connector to interconnect the VT7001 channel under test with the power supply's output channel and the measurement device.

Test setup

Connect the power supply's output to the VT7001 external power supply input you want to use for measuring. Also connect the power supply to the measurement device. The following illustration shows this setup:



Example of voltage measurement at external power supply input 1 with a VT2004.

Test execution

Repeat the following steps for each of the V7001 measurement channels and each of the voltages specified in the test protocol. The voltage is measured at both inputs for external supplies (power supply 1 and power supply 2) and both output channels (out 1 and out 2). Both output channels can measure with only one external power supply connected.

> Configure the power supply.

> Make sure the stimulated voltage is measured correctly by the connected measurement device.

> Connect the current measurement channel to the external power supply input of the VT7001 as described above.

> Configure the measurement channel in the VT System Control window. Choose the appropriate power supply in the interconnection settings. Then close the relay of the used output channel to measure the output voltage. The stimulated voltage should be measured correctly here, too.

> Enter the exact stimulated voltage (measured by the oscilloscope) and the measured voltage into the test protocol. The protocol will automatically indicate if the measured value is within the permitted tolerance range.

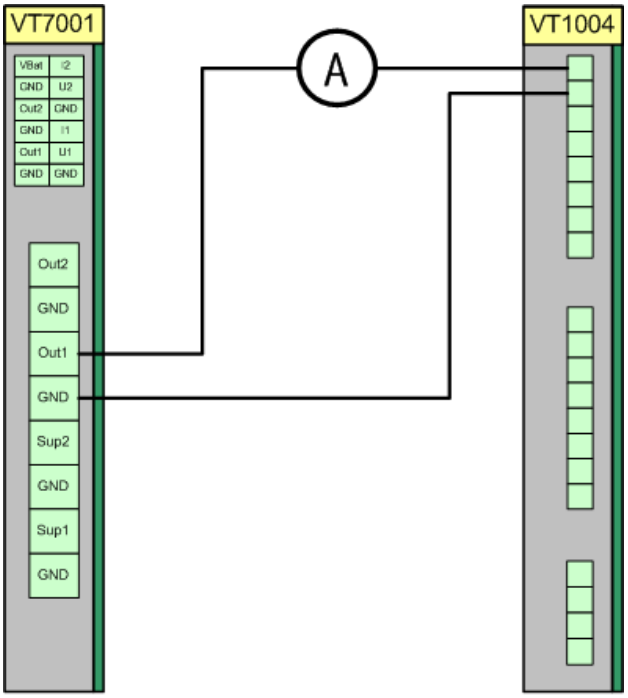
8.3 Current Measurement

Requirements

In addition to the VT7001 a current measurement device and a VT1004 is required. You also need a connector to interconnect the VT7001 channel under test with the measurement device and the VT1004.

Test setup

Connect the stimulation channel to the measurement device. The following illustration shows this setup:



Example of current measurement at output 1.

Test execution

Repeat the following steps for both of the VT7001 output channels and each of the current values: specified in the test protocol.

> Configure the output channel of the VT7001 via the VT System Control window. Choose the internal power supply option in the interconnection settings and close the relay of the appropriate output channel.

> Set the measurement range of the output to “10A”.

> Configure the electronic load of the VT1004 via the VT System Control window.

> Position the measurement device between the VT7001 and the VT1004 and connect it to both modules as described above.

> Make sure the stimulated current is measured correctly by the connected measurement device.

> Enter the exact stimulated current (measured by the measurement device) and the measured current into the test protocol. The protocol will automatically indicate if the measured value is within the permitted tolerance range.

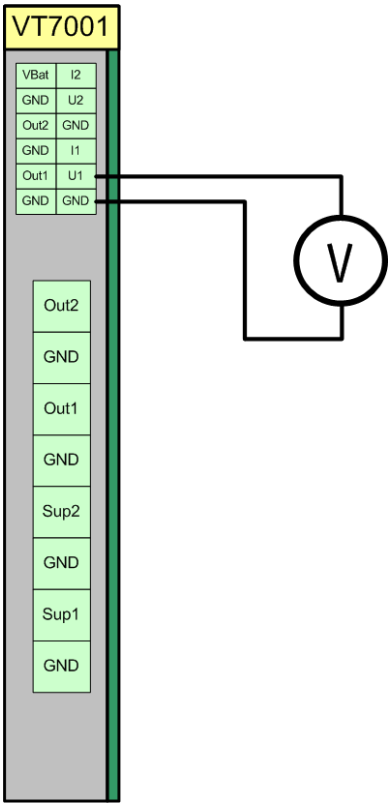
8.4 Control Voltage for External Supplies

Requirements

In addition to the VT7001 a measurement device (e.g. oscilloscope) is required. You also need a connector to interconnect the VT7001 control voltage output under test with the measurement device.

Test setup

Connect the control voltage output to the measurement device (make sure to use the corresponding GND connector). The following illustration shows this setup:



Example of control voltage stimulation at control voltage output 1.

Test execution

Repeat the following steps for each of the two VT7001 power supply channels and each of the voltages specified in the test protocol.

> Configure the reference voltage mode of the power supply to “Constant” via the VT System Control window.

> Set the reference voltage according to the test protocol via the VT System Control window.

> Make sure the stimulated voltage is measured correctly by the connected measurement device.

> Enter the exact stimulated voltage (measured by the oscilloscope) into the test protocol. The protocol will automatically indicate if the measured value is within the permitted tolerance range.

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