

**LeCroy**

**VT75**

**TV Trigger Package**

**Operator's Manual**

**August 2004**



**LeCroy Corporation**

700 Chestnut Ridge Road  
Chestnut Ridge, NY 10977-6499  
Tel: (845) 578 6020, Fax: (845) 578 5985

**Internet:** [www.lecroy.com](http://www.lecroy.com)

© 2004 by LeCroy Corporation. All rights reserved.

LeCroy, ActiveDSO, ProBus, CANbus TD, JitterTrack, WavePro, WaveMaster, and Waverunner are registered trademarks of LeCroy Corporation. Information in this publication supersedes all earlier versions. Specifications subject to change without notice.

VT75-OM-E Rev A  
902590

**SAFETY REQUIREMENTS..... 3**

    Cleaning ..... 3

    Use and Maintenance..... 3

**OVERVIEW OF VT75..... 4**

**VT75 STANDARD TRIGGER SETUP ..... 5**

    Connecting the Video Trigger Module ..... 5

    Setting Up Video Trigger ..... 5

**CUSTOM TRIGGER SETUP ..... 8**

**SPECIFICATIONS ..... 9**

    Electrical Characteristics ..... 9

    General Characteristics: ..... 10

    Certifications: ..... 10

BLANK PAGE

### SAFETY REQUIREMENTS



Wherever this symbol appears on the product, it refers you to additional information contained in the operator's manual. The corresponding information in the manual is similarly denoted.

To avoid personal injury or damage to the VT75 Video Trigger module or any products connected to it, review and comply with the following safety precautions.

- Connect to properly grounded instruments. This module is to be used only with compatible LeCroy instruments with input connectors in which the BNC shield (ring) is connected to earth ground.
- Do not exceed the Max Input rating of the module. Do not apply any potential to the input that exceeds the maximum ratings of the module. Refer to the Specifications section for input ratings information before making connections to the product.
- Do not use in wet or explosive atmospheres.
- For indoor use only. The VT75 module is intended for indoor use and should be operated in a clean, dry environment.
- Do not use the module if any part is damaged. All maintenance should be referred to qualified service personnel.
- Use of the module and/or the test instrument it is connected to in a manner not specified by the manufacturer may impair the protection mechanisms.

### Cleaning

The outside of the module should be cleaned with a soft cloth dampened with either deionized or distilled water or isopropyl alcohol. Allow the surface to dry completely before returning the module to service. Never immerse the module in any liquid.

### Use and Maintenance

The module is a high quality, precision instrument. To maintain accuracy and signal fidelity, mechanical shock should be avoided, as well as damage to the cable through excessive bending. All maintenance and component replacement should be referred to qualified personnel.

## OVERVIEW OF VT75

LeCroy's VT75 Video Trigger option comprises software and a 75-ohm,  $2 V_{pk}$  input trigger module. This combination provides stable triggering on standard or custom composite video signals. Use them on PAL, SECAM, or NTSC standards. There are standard settings for the most common types of TV signals; however, in Custom mode, the field, the number of fields, the frequency, interlace factor, and number of lines per frame must be specified. TV Trigger can also function in a simple any-line mode.

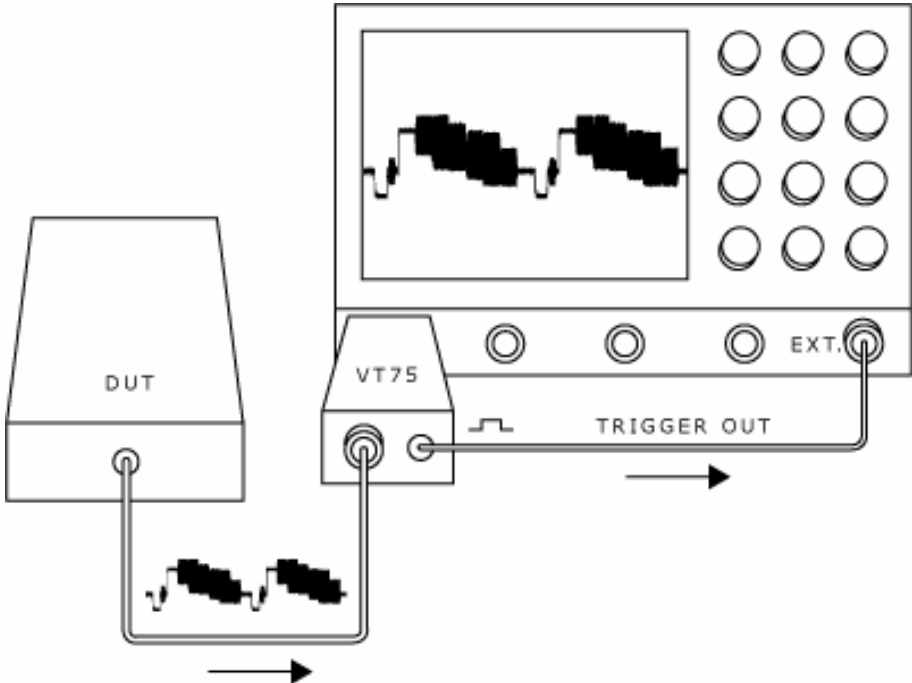
Most TV standards have more than two fields. VT75's enhanced field counting capability (FIELDLOCK) allows you to trigger consistently on a chosen line within a signal field.

The field numbering system is relative: the oscilloscope will trigger on 1, 2, 4, or 8 fields.

NTSC (525/60/2:1)	Use NTSC for standard 60 Hz field rate NTSC signals. The lines can be selected in the range 1 to 526, where line 526 is identical to line 1.
PAL / SECAM (625/50/2:1)	Use PAL for most of the standard 50 Hz field rate signals. The lines can be selected in the range 1 to 626 where line 626 is identical to line 1.
CUSTOM	For maximum flexibility, no line-counting convention is used in Custom mode. Instead, the line count should be thought of as a line-synchronizing pulse count. It includes the transitions of the equalizing pulses. In certain extreme cases, the field transition recognition will no longer work, and only the "any line" mode will be available.

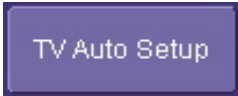
VT75 STANDARD TRIGGER SETUP

Connecting the Video Trigger Module

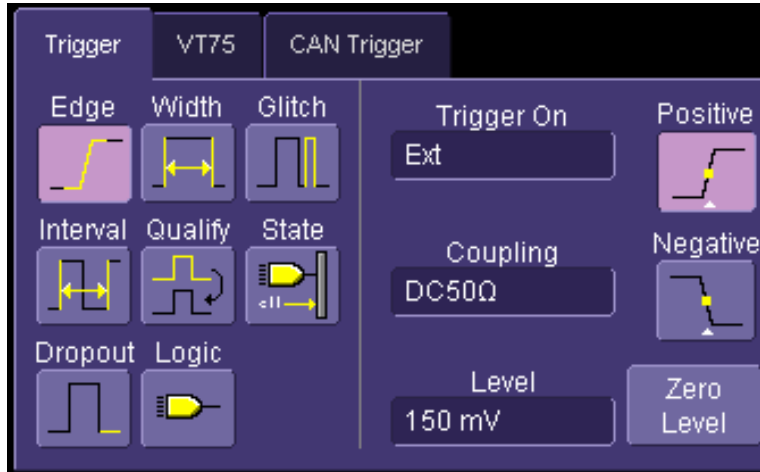


The VT75 Module may be plugged into any channel input. Trigger Out may be connected to any channel input, but in order for the "TV Auto Setup" button to work properly, it must be plugged into Ext. (Aux. Input).

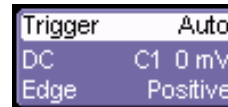
Setting Up Video Trigger



Before you begin setting up the video trigger, touch the **TV Auto Setup** button in the "VT75" dialog. If you choose not to use the TV Auto Setup button, ensure that **Edge** trigger, **Positive** is selected in the "Trigger" setup dialog:



The "Trigger" setup dialog is also accessible by touching the **Trigger** descriptor label:



<p>NTSC (525/60/2:1)</p> <p>PAL / SECAM (625/50/2:1)</p>	<p>1. Touch one of these buttons to select a television standard.</p>
<p>TV Auto Setup</p>	<p>2. Touch the <b>TV Auto Setup</b> button to quickly set the scope to</p> <p><b>Vertical Scale:</b> 200 mV/div</p> <p><b>Timebase:</b> 20 s/div</p> <p><b>Offset:</b> 0 mV</p> <p><b>Trigger Mode:</b> Normal, Positive Edge</p> <p><b>Trigger Coupling:</b> 50 ohm External</p> <p><b>Sampling Mode:</b> Real Time</p> <p><b>Active Channels:</b> 4</p> <p><b>TV Trigger Source:</b> External (Aux Input on some scopes)</p> <p><b>Trigger Level:</b> 150 mV</p>


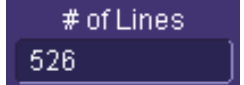

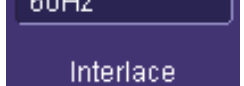


# VT75 TV Trigger Option

<div data-bbox="261 205 500 300" style="border: 1px solid black; padding: 5px;"> <p>TV Trigger Source</p> <p>Ext</p> </div>	<p>3. Touch inside <b>TV Trigger Source</b> and select <b>Ext</b> (location of Trigger Out cable) from the pop-up menu:</p> <div data-bbox="625 268 1203 600" style="border: 1px solid black; padding: 10px; margin: 10px auto; width: fit-content;"> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>TV Signal C1</td> <td>C2</td> <td>C3</td> </tr> <tr> <td>C4</td> <td>Ext*10</td> <td style="background-color: #e0e0ff;">Ext</td> </tr> <tr> <td>Ext/10</td> <td>Line</td> <td>Pattern</td> </tr> </table> </div> <p><b>Note:</b> The channel that you have the VT75 Module connected to is automatically designated "TV Signal" in the menu.</p>	TV Signal C1	C2	C3	C4	Ext*10	Ext	Ext/10	Line	Pattern
TV Signal C1	C2	C3								
C4	Ext*10	Ext								
Ext/10	Line	Pattern								
<div data-bbox="261 705 500 800" style="border: 1px solid black; padding: 5px;"> <p>Sync Pulse</p> <p>Negative</p> </div>	<p>4. Touch inside <b>Sync Pulse</b> and select positive or negative polarity. This selection is independent of the polarity selected for Edge trigger (positive) in the "Trigger" setup dialog.</p>									
<div data-bbox="261 821 500 915" style="border: 1px solid black; padding: 5px;"> <p>Trigger on Any Line <input checked="" type="checkbox"/></p> </div>	<p>5. Check the <b>Trigger on Any Line</b> checkbox if you do not want to specify one. In this case the scope will trigger on any sync pulse.</p>									
<div data-bbox="261 936 500 1031" style="border: 1px solid black; padding: 5px;"> <p># of Fields</p> <p>4</p> </div>	<p>6. Touch inside <b># of Fields</b> and make a selection (1 to 8) from the pop-up menu.</p>									
<div data-bbox="261 1047 500 1142" style="border: 1px solid black; padding: 5px;"> <p>Line</p> <p>526</p> </div>	<p>7. Touch inside <b>Line</b> and enter a line number, using the pop-up keypad. The maximum line number that you can enter depends on the television standard (NTSC/PAL/SECAM) and the interlace factor selected. For NTSC, line 526 is the same as line 1; for PAL, line 626 is the same as line 1.</p>									
<div data-bbox="261 1215 500 1310" style="border: 1px solid black; padding: 5px;"> <p>Field</p> <p>4</p> </div>	<p>8. Touch inside <b>Field</b> and make a selection from the pop-up menu. The maximum field number that you can select is limited by your selection in <b># of Fields</b>. If <b># of Fields</b> above is set to <b>1</b>, this selection is disabled.</p>									

## CUSTOM TRIGGER SETUP


The VT75 video trigger option gives you the capability to analyze non-standard TV signals. Custom mode allows you to select any number of lines per frame up to 1500, at a frequency of either 50 or 60 Hz. Interlacing up to 8:1 can be selected.

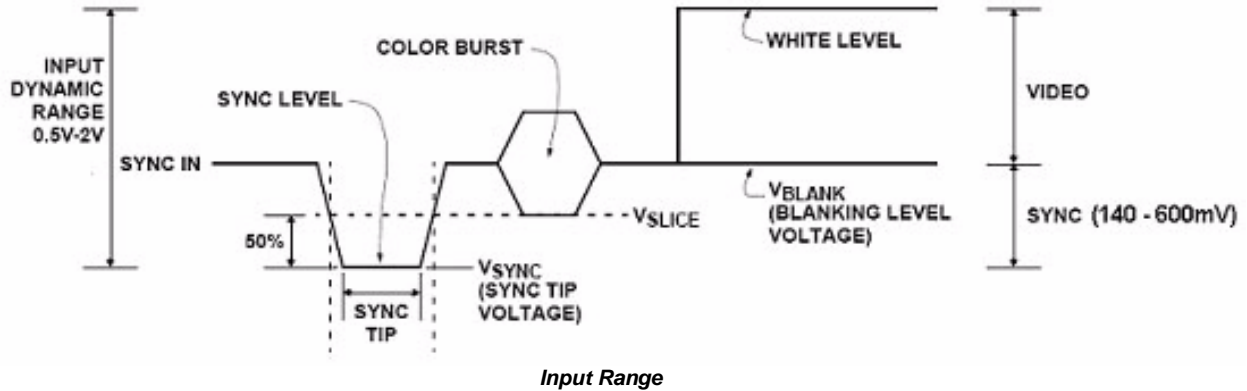
	1. Touch the <b>Custom</b> button to select Custom mode.
	2. Touch inside <b># of Lines</b> , and enter a value up to 1500, using the pop-up keypad.
	3. Touch inside <b>Hz</b> and select 50 or 60 Hz from the pop-up menu.
	4. Touch inside <b>Interlace</b> and select an interlacing factor from the pop-up menu.
<b>Note:</b> A selection from this menu of 1:1 will reset the # of Fields selection to 1, since interlacing does not apply to a single field. The maximum allowable interlace factor is equal to the # of Fields set.	

## VT75 TV Trigger Option

### SPECIFICATIONS

#### Electrical Characteristics

<b>Input</b>	Standards Supported	NTSC, PAL/SECAM, Custom up to 1500 Lines
	Interface	75 ohm BNC connector
	Input Impedance	75 ohms
	 Max Input	2 V pk
	75 ohm Overload Protection	Input clamped from 0 to 3.3V
	Input Range	500 mV to 2 V
<b>Signal Output</b>	Interface	ProBus® system BNC connector
	Output Impedance	50 ohm output to 50 ohm scope input
<b>Trigger Output</b>	Interface	50 ohm BNC connector
	Waveform	Square Wave
	Output Impedance	50 ohms
	Trigger Edge	Falling edge of the sync pulse (user selectable)
<b>Trigger Mode</b>	Signal Select	NTSC, PAL/SECAM, Custom
	Line / Field Select	Line: any, up to 1500 Field: up to 8
	Slope	Positive / Negative
	Sensitivity	500 mV



**General Characteristics:**

- Operating Temperature: +5 to +45 °C
- Storage Temperature: -40 to +71 °C
- Humidity: <= 80% RH (non-condensing)
- Altitude, Operating: 3048 m (10,000 ft) max at <= 25 °C
- Cable Length: 47 cm (18.5 inches)
- Weight (module only): 90.7g (0.20 lbs.)

**Certifications:**

EC Declaration of Conformity	Meets intent of the European Council Directive 89/336/EEC with Amendments 92/31 EEC and 93/68/EEC for Electromagnetic Compatibility. This declaration is based upon compliance of the product to the following standards:  EN 61326:1997 +A1:1998*  EMC requirements for Class A electrical equipment for measurement, control, and laboratory use.
------------------------------	---

\* Radiated emissions may exceed the levels specified in EN 61326 when the VT75 module is connected to a test object.

§ § §