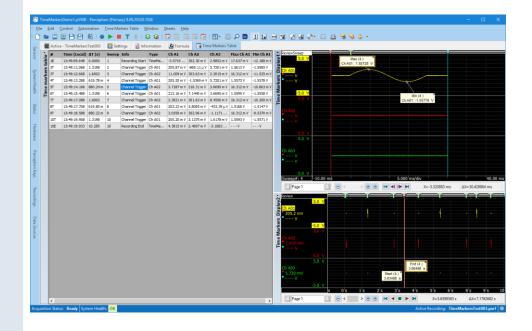


User manual

English



Perception CSI Extension Extended time markers table Version 1.0



Document version 1.0 - Nov 2020

For Perception 8.0 or higher

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Table of Contents

T.	ABLE	OF CONTENTS	2
1	INT	RODUCTION	4
2	SC	OPE	4
3	GE	TTING STARTED	5
	3.1	INSTALLATION	
	3.2	REQUIREMENTS	5
4	AP	PLICATION FUNCTIONALITY	ô
	4.1	GENERAL	6
	4.2	TIME MARKERS TABLE CONTENTS	6
	4.3	TIME MARKERS TABLE EXTRA COLUMNS	9
	4.4	TIME MARKERS TABLE AND DISPLAYS	
	4.5	TIME MARKERS TABLE TOOLBAR	
	4.6	TIME MARKERS TABLE PRINTING AND REPORTING1	
	4.7	CREATING, DELETING AND RENAMING A TIME MARKER TABLE	
	4.7	7.1 Creating	6
	4.7	7.2 Deleting	6
	4.7	7.3 Renaming1	7





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1 Introduction

Welcome to the Time markers table software manual. This document describes how to use this software application.

The purpose of the new application is that it can show all or only specified time markers (including triggers) in a table. This table will be automatically updated during recording. It will also be filled when reopening an existing recording. The time markers table can be linked to a Perception display, when this is done the data shown in the display is controlled by the table; when double clicking on an individual time marker in the table the display time position will be automatically set to the position of the selected time marker.

Multiple time marker tables can be used in Perception.

The new Time marker sheet contains a table used to display the time markers; optionally one or two displays can be added to this sheet.

The application is an integrated part of the Perception software.

The application is based on the Perception Custom Software Interface (CSI). This manual assumes you understand your Genesis High Speed Test and Measurement equipment, software and basic acquisition terminology. You may like to use the Perception User Manual as a reference.

2 Scope

This Perception software extension enables the use of Time markers table with any GEN DAQ hardware.

Via the extra sheet(s) the operator can do the following things:

- Browse through all or a selectable number of time markers of a recording
- Control one or two displays from the time markers table
- Print the time markers
- Show extra time marker related information in the time marker table, like the value of other channels at the time marked by the time marker
- Do sweep related calculations and store the result into the table, for example calculate the maximum of a sweep and save it into the time marker table
- Export the time markers to Word, Excel or copy it into the clipboard.

3 Getting Started

3.1 Installation

The Time markers table software is provided as an install file.

Perception CSI Extended Time marker Table 3.0.20332.1200.exe

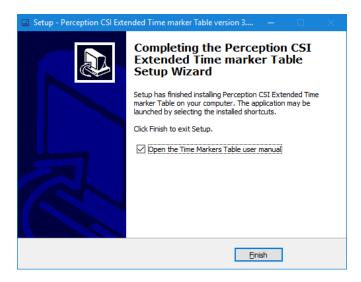
The name of the install file may be different when you have a newer version.

Run this file to install the software and the manual on your PC

The Time markers table software is **not** a stand-alone program which can be started from the Windows Start menu! It is an integrated part of the Perception software program. Once you start Perception you will see an extra sheet called: **Time Markers Sheet**

The manual has also been installed on your PC. It is a PDF file which can be opened via the windows Hottinger Brüel & Kjaer menu.

It is also possible to open the manual at the end of the installation:



If you cannot open this pdf file then you may have to install the Acrobat® Reader®.

3.2 Requirements

Time markers table software operates on any PC where Perception 8.0 or later is running.

The Time markers table application can only be used when the HASP® USB key CSI option has been enabled. You can check it has been enabled by going to the Help About dialog and click **More...**. The "More About Perception" dialog shows which options are enabled.

The CSI option icon looks like:



4 Application functionality

4.1 General

Perception has been extended with the option to add new time markers tables. A new time marker table can be added via the Perception Sheets menu. Select the option **New Time Markers Table**.

File Edit Control Automation Time Markers Table Wind	low	Sheets	jelp
🗅 📨 🖾 🖽 💾 🔡 😼 🔹 🕨 📕 T 🌵 🕬	6	Mana	ge Sheets
		😫 <u>N</u> ew	User Sheet
	1	New	Time Markers Table
		✓ <u>1</u> Act	ive - TimeMarkersTest003
		✓ <u>2</u> Set	tings
		✓ <u>3</u> Infe	ormation
		✓ <u>4</u> For	mula

The new sheet contains a table which will be used to show the time markers of the open active recording.

It is possible to create as many Time Marker Tables as you want, each table will have a unique name, it is possible to change the name of a table via the properties dialog.

The following paragraphs will describe the application in more detail.

4.2 Time markers table contents

If you open an existing recording as active or make a new recording than the **Time Markers Table** will be filled automatically.

C			sDemo1.pVWB - Pe						×
<u>F</u> ile	e <u>E</u>	dit (<u>Control</u> dutomat	ion <u>T</u> ime	e Markers	Table <u>W</u> indow	<u>Sheets</u> <u>H</u> elp		
Ľ	Þ	<u></u>	😐 🗄 🗄 📙	E 🔴 🕨	- 🔳 1	r 🖢 : 🛈 😘	: 🔽 🖪 🖪 🛛	8 🖬 : 🖪 • 🥕	
Š	1	Active	- TimeMarkersTes	t003 [Settings	i Information	n 🖻 Formula	📑 Time Markers Table	
Sensors	ě	#	Time (Local)	ΔT (s)	Sweep	Info	Туре		
ŝ	table ⁴	1E	13:49:09.648	0.0000	1	Recording Start	TimeMarkersTest003		
		1T	13:49:09.748	0.0000	1	Channel Trigger	Ch A02		
System Health	ķē	2Т	13:49:11.068	1.3198	2	Channel Trigger	Ch A01		
ŝ	markers	3T	13:49:12.668	1.6002	3	Channel Trigger	Ch A02		
ea	ē	4T	13:49:13.288	619.78 m	4	Channel Trigger	Ch A01		
5	Time	5T	13:49:14.168	880.24 m	5	Channel Trigger	Ch A02		
	·	6T	13:49:15.488	1.3198	6	Channel Trigger	Ch A01		
Statue		71	13:49:17.088	1.6002	7	Channel Trigger	Ch A02		
i l		8T	13:49:17.708	619.80 m	8	Channel Trigger	Ch A01		
		9T	13:49:18.588	880.22 m	9	Channel Trigger	Ch A02		
I.		10T	13:49:19.908	1.3198	10	Channel Trigger	Ch A01		
Hardwa		10E	13:49:19.933	10.285	10	Recording End	TimeMarkersTest003		
		_	s: Ready System	Health: 0			tive Recording: Tim		-

A time marker table shows per default the following information per time marker:

- A number followed by a character (# column)
- A Time
- The delta time (ΔT) with the previous time mark of the same type
- The Sweep number to which the time marker belongs
- The Info column gives information about the kind of time marker
- Type contains extra information

#

There are various kinds of time markers the two most frequently used time markers are the **Event Marker** (E in number column) and the **Trigger Marker** (T in number column) Per time marker type a numbering sequence is used, e.g. **1T** means first trigger.

Via the properties dialog you can modify various properties. Use the right mouse click on the table to get access to this properties dialog.

80.24 m	5		Channel Trigger	Ch A02				
.3198	6		Channel Trianne Change					
.6002	7		<u>R</u> efresh					
19.80 m	8	1	Copy Calculator	<u>C</u> opy Calculator Table to Clipboard				
80.22 m	9	۶	<u>P</u> roperties					
.3198	10		Channel Trigger	Ch A01				

Or use the Time Markers Table menu:

Т	net l	larke	nDen	no1.p	WE	- Percepti	en (P	rimary) 8.09.20128	1038		
Eile	E	dit	Con	trol	Aut	omation	Tim	e Markers Table	$\underline{W} indow$	Sheets	В
		-		Β		B : (•	<u>R</u> efresh			
							X ::	Post to Excel			
								Append to <u>E</u> xcel			
							×,	C <u>o</u> py to Excel			
						[W 1	Post to Word			
						1		<u>C</u> opy Trigger Tal	ble to Clipb	oard	
							۶	Proper <u>t</u> ies			
								Layout			۲
						1		About			
								Rename Sheet 'T	ime Marker	rs Table'	
								Move Sheet 'Tim	e Markers 1	Table' to	F
						1		Delete Sheet 'Tin	ne Markers	Table'	
						ĺ		Hide Sheet 'Time	Markers Ta	able'	

Or use the toolbar:

8	TimeMarkersDemo1.pVWB - Perceptio	n (Primary) 8.09.203	328.1038			
E	ile Edit Control Automation	Time Markers Table	e <u>W</u> indow <u>Sheets</u> <u>H</u> elp			
: [) 🖿 🖽 🖽 🖽 🛤 i 🖷	• • • •	0 0 : 🔽 🔚 📼	1 TE 1 E .	۵ 😬 🖉	S 3 2
x	Active - TimeMarkersTest003	Settings	Information 🛛 🔏 Formula	Time Marke	Properties	

If you open the Time Markers Table Properties dialog you can select which time markers you want to see into the table, various time markers are: *Trigger* and *Event Markers*.

Misc Time format AT format	Extra Columns						
<u>T</u> able name: Events to be shown: ☑ Ijriggers	Time markers table						
✓ Event Markers							
Link to time domain Display 1:	<no link=""> \checkmark</no>						
Link to time domain Display 2:	<no link=""></no>						
Filter on time markers Type:							
Wildcards * and ? can be used, multiple filters can be entered using a semicolumn as separator. Examples: "ChA*" or "ChA1;ChA2"							
Filter:							



Time

This column shows the time of the time marker. Via the following configuration dialog you can select the format of the time presentation.

Misc Time format AT6	ormat Extra Columns
Number of <u>D</u> ecimals:	3 🜲
Time format:	◯ <u>R</u> elative
	Local
	<u>О и</u> тс
Date format:	<u>N</u> one
	O Short
	O Long

ΔТ

The delta time with the previous time mark of the same type. Via the following configuration dialog you can select the format of the time span.

Misc Time format ΔT for	ormat Extra Columns
◯ <u>h</u> h:mm:ss	
<u>N</u> umber of decimals:	0
Seconds	
Notation:	Engineering \vee
Number of <u>d</u> igits:	5 🜩
Before separator:	2
<u>A</u> fter separator:	3
○ <u>A</u> uto	
If ΔT is below the tre expressed in second will be used.	eshold level it will be Is else the hh:mm:ss format
<u>Threshold level:</u>	60 🖕 seconds

Sweep

The sweep number to which the time marker belongs

Info

The info gives information on what kind of time marker it is. Examples are **Recording Start**, **Recording End** and **Channel Trigger**. If working with a fiber it can also show when the synchronization has been lost or when the synchronization has been recovered.

Туре

This column gives extra information depending on the type of trigger. If for example the time marker is indicating a *Recording Start*, then this column shows the name of the active recording. When dealing with a trigger the trigger source is shown.

It is also possible to filter on the Type of a time marker. You can use the **Filter on time marker Type**: in the picture below you can see how to do this.

Misc	Time format	∆T format	Extra Columns	
Iabl	e name:		Time markers table	
R	nts to be show [] <u>T</u> riggens [] <u>E</u> vent Marke			
Link	to time domain	Display 1:	<no link=""></no>	\sim
Link	to time domain	Display 2:	<no link=""></no>	\sim
V N Se E	on time marke [] Eiter enable /ildcards * and emicolumn as s xamples: ''ChA ter: Ch A01	d ? can be us separator.	ed, multiple filters can be entered using :ChA2''	7 a

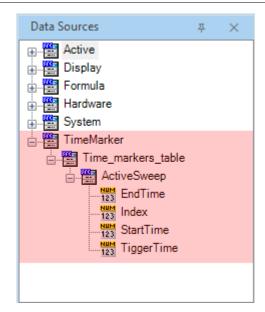
4.3 Time Markers Table Extra Columns

It is possible to add a maximum of 10 extra columns to the Time Markers Table.

ě	#	Time (Local)	ΔT (s)	Sweep	Info	Туре	Ch A1	Ch A2	Ch A3	Max Ch A1	Min Ch A1
table	1E	07:57:10.790	0.0000	1	Recording Start	TimeMarkersTest005				V	V
	1T	07:57:18.326	0.0000	1	Channel Trigger	Ch A01	201.85 m V	9.5137 m V	7.1026 m V	1.5592 V	-1.5612 V
rkers	2T	07:57:19.206	880.23 m	2	Channel Trigger	Ch A02	10.965 m V	308.67 m V	5.0514 m V	16.267 m V	-10.244 m V
mar	3T	07:57:20.526	1.3198	3	Channel Trigger	Ch A01	201.85 m V	1.5005 m V	4.3677 m V	1.5175 V	-1.5141 V
۵U	4T	07:57:22.126	1.6002	4	Channel Trigger	Ch A02	1.6857 m V	302.66 m V	3.0002 m V	17.592 m V	-11.570 m V
Ē	5T	07:57:22.746	619.79 m	5	Channel Trigger	Ch A01	203.17 m V	-502.78 μ V	4.3677 m V	1.5142 V	-1.5121 V
	6T	07:57:23.626	880.21 m	6	Channel Trigger	Ch A02	1.6857 m V	303.33 m V	2.3165 m V	16.267 m V	-13.558 m V
	π	07:57:24.946	1.3198	7	Channel Trigger	Ch A01	201.18 m V	6.1749 m V	5.7352 m V	1.5135 V	-1.5108 V
	8T	07:57:26.546	1.6003	8	Channel Trigger	Ch A02	1.0229 m V	308.00 m V	949.07 µ V	17.592 m V	-11.570 m V
	9T	07:57:27.166	619.79 m	9	Channel Trigger	Ch A01	207.15 m V	4.8393 m V	6.4189 m V	1.5135 V	-1.5121 V
	10T	07:57:28.046	880.18 m	10	Channel Trigger	Ch A02	-3.6166 m V	300.66 m V	4.3677 m V	15.604 m V	-9.5816 m V
	10E	07:57:28.071	17.281	10	Recording End	TimeMarkersTest005	-2.2910 m V	4.8393 m V	4.3677 m V	V	V
									_		
								Ext	ra čolu	umns	

Those columns can be used to show the value of other waveforms (e.g. other measured channels) at the time of the time marker. In the above display channels Ch A1, Ch A2 and Ch A3 are shown. It is however also possible to show any numerical or string data source as extra column. Before it is explained how to do this you should know that the Time Marker Table is creating dynamic data sources. These data sources will be changed when a new time marker comes in or when you select a row in the Time markers table. Per table four data sources are created as shown in the picture below.





The data sources are:

- EndTime: The end time of the active sweep
- Index: The sweep index of the active sweep
- StartTime: The start time of the active sweep
- TriggerTime: The trigger time of the active sweep

The full name of these data sources depend on the name of the time markers table which produces these data sources.

For example the StartTime produced by the table called **Time_markers_table** looks like:

TimeMarker.**Time_markers_table**.StartTime

These new data sources can be used by the formula sheet to do specific calculations. In the example below you can see how the **StartTime** and **EndTime** are used to find the sweep maximum, minimum and their positions using channel Ch_A01.

Num	Name	Fomula
1	MaxSweepA1	@Max(Active.Group1.Recorder_A.Ch_A01; TimeMarker.Time_markers_table.ActiveSweep.StartTime; TimeMarker.Time_markers_table.ActiveSweep.EndTime)
2	MinSweepA1	@Min(Active.Group1.Recorder_A.Ch_A01; TimeMarker.Time_markers_table.ActiveSweep.StartTime; TimeMarker.Time_markers_table.ActiveSweep.EndTime)
3	MaxPosSweepA1	@MaxPos(Active.Group1.Recorder_A.Ch_A01; TimeMarker.Time_markers_table.ActiveSweep.StartTime; TimeMarker.Time_markers_table.ActiveSweep.EndTime)
4	MinPosSweepA1	@MinPos(Active.Group1.Recorder_A.Ch_A01; TimeMarker.Time_markers_table.ActiveSweep.StartTime; TimeMarker.Time_markers_table.ActiveSweep.EndTime)

Each time a new trigger comes in or you change the active row (by selecting a cell in the Time Markers Table) these data sources will be updated.

Now we know that we can do sweep specific calculations we can use this to add this new calculated information to the Time Markers Table via the extra columns.

Open the Extra Columns tab in the Time Markers Table Properties dialog. Select the number of extra columns you need (maximum is 10). Per extra column you have to define:

- Column title
- Column data sources
- Output format

You can find those items back in the following dialog:

Time N	Markers Table Proper	ties		×
Misc	Time format ∆T fo	ormat Extra Columns		
N	umber of extra columns	5 ÷		
#	Column title	Column data sources		Output format
1	Ch A1	Active.Group 1.Recorder_A.Ch_A01	ρ 🖌	#.####k!Units
2	Ch A2	Active.Group 1.Recorder_A.Ch_A02	ρ 🖌	#.####k!Units
3	Ch A3	Active.Group 1.Recorder_A.Ch_A03	P	#.####k!Units
4	Max Ch A1	Formula.MaxSweepA1	P	#.####k!Units
5	Min Ch A1	Formula.MinSweepA1	ρ 🖌	#.####k!Units
it , 56	possible to finish the ca	mns which are depending on calculated results from formu- liculation before going to the next time marker. The size of the refreshing of the Time Marker Table and checking the ms ms	this delay depends (on the calculations and it has to be
				OK Cancel

When you select a new data source and the **Column title** was empty then the **Column title** will be filled in automatically depending on the selected data source.

When the seleted data source is a waveform then the current time marker time (= TriggerTime data source, see above) is used to get the value of the choosen waveform at that specific time.

If the selected data source is not a waveform than its value will be shown, most of the time this will be a numerical value but it can also be a string value, below you can find an example on this.

If the output is a numerical value you can use the Output format to select the wanted format for showing the numerical value in the table.

Format Definition		×
✓ Insert <u>U</u> nits		
Value properties		
Notation: Engineering		~
Format		
Number of digits		5 🜲
Before separator		2 🜲
<u>A</u> fter separator		3 🜲
Unit <u>p</u> refix		None 🗸
	ОК	Cancel

Here you can find an example using a string result in one of the extra columns. A sweep is correct (passed) when the maximum value of channel A01 is equal or above 1V. The extra column will show if a sweep has passed or failed. To make this possible we use the following formulas:

Num	Name	Fomula
1	MaxSweepA1	@Max(Active.Group1.Recorder_A.Ch_A01; TimeMarker.Time_markers_table.ActiveSweep.StartTime; TimeMarker.Time_markers_table.ActiveSweep.EndTime)
2	MinSweepA1	@Min(Active.Group1.Recorder_A.Ch_A01; TimeMarker.Time_markers_table.ActiveSweep.StartTime; TimeMarker.Time_markers_table.ActiveSweep.EndTime)
3	MaxPosSweepA1	@MaxPos(Active.Group1.Recorder_A.Ch_A01; TimeMarker.Time_markers_table.ActiveSweep.StartTime; TimeMarker.Time_markers_table.ActiveSweep.EndTime)
4	MinPosSweepA1	@MinPos(Active.Group1.Recorder_A.Ch_A01; TimeMarker.Time_markers_table.ActiveSweep.StartTime; TimeMarker.Time_markers_table.ActiveSweep.EndTime)
5		
6		Check if maximum is less than 1, this is too low
7	MaxTooLow	@LessThan(Formula.MaxSweepA1; 1)
8		Use the MaxTooLow to make the new formula SweepResult1 either "FAILED" or "PASSED"
9	SweepResult1	@IIF(Formula.MaxTooLow, "FAILED"; "PASSED")
10		We need an extra check because it might happen that there is no calculated maximum value
11	SweepResult2	@IsNaN(Formula.MaxSweepA1)
12		Now we combine the above checks in a final formula which can return the following strings: "", "FAILED" or "PASSED"
13	SweepOK	@IIF(Formula.SweepResult2; ""; Formula.SweepResult1)

Now we add an extra column to the Time Marker sheet:

Mis	c Time format ∆	T format Extra Columns			
1	Number of extra colun	nns: 6 ෫			
#	Column title	Column data sources			Output format
1	Ch A1	Active.Group1.Recorder_A.Ch_A01	Q	1	#.####k!Units
2	Ch A2	Active.Group 1.Recorder_A.Ch_A02	Q	1	#.####k!Units
3	Ch A3	Active.Group 1.Recorder_A.Ch_A03	Q	1	#.####k!Units
4	Max Ch A1	Formula.MaxSweepA1	Q	1	#.####k!Units
5	Min Ch A1	Formula.MinSweepA1	Q	1	#.####k!Units
6	Evaluation	Formula.SweepOK	Q	1	#.####k!Units
1	t possible to finish the	olumns which are depending on calculated results from form calculation before going to the next time marker. The size of with the refreshing of the Time Marker Table and checking th ms	this delay dep	nends o	n the calculations and it has to be

The resulting table now looks like:

ē	#	Time (Local)	ΔT (s)	Sweep	Info	Туре	Ch A1	Ch A2	Ch A3	Max Ch A1	Min Ch A1	Evaluation
table	1E	10:06:08.468	0.0000	1	Recording Start	TimeMa	4.3523 m V	6.4065 m V	7.7030 m V	V	V	
2	1T	10:06:08.473	0.0000	1	Channel Trigger	Ch A02	5.0151 m V	310.91 m V	-2.5529	15.620 m V	-10.229 m V	FAILED
IXe	2Т	10:06:09.093	619.82 m	2	Channel Trigger	Ch A01	204.51 m V	8.4098 m V	8.3867 m V	1.5606 V	-1.5585 V	PASSED
	3T	10:06:09.973	880.20 m	3	Channel Trigger	Ch A02	-949.95	303.56 m V	6.3355 m V	16.282 m V	-10.229 m V	FAILED
D	4T	10:06:11.293	1.3198	4	Channel Trigger	Ch A01	210.48 m V	6.4065 m V	4.2844 m V	1.5599 V	-1.5591 V	PASSED
	ज	10:06:12.893	1.6002	5	Channel Trigger	Ch A02	375.61 µ V	302.23 m V	4.2844 m V	18.271 m V	-10.892 m V	FAILED
	6Т	10:06:13.513	619.83 m	6	Channel Trigger	Ch A01	206.50 m V	2.3999 m V	11.122 m V	1.5142 V	-1.5141 V	PASSED
	π	10:06:14.393	880.20 m	7	Channel Trigger	Ch A02	3.6895 m V	300.22 m V	4.9681 m V	15.620 m V	-9.5661 m V	FAILED
	8T	10:06:15.713	1.3198	8	Channel Trigger	Ch A01	201.86 m V	6.4065 m V	2.2332 m V	1.5599 V	-1.5578 V	PASSED
	9T	10:06:17.313	1.6002	9	Channel Trigger	Ch A02	3.0267 m V	301.56 m V	3.6006 m V	16.945 m V	-10.892 m V	FAILED
	10T	10:06:17.933	619.83 m	10	Channel Trigger	Ch A01	204.51 m V	6.4065 m V	-1.1854	1.5162 V	-1.5121 V	PASSED
	10E	10:06:17.958	9.4900	10	Recording End	TimeMa	375.61 µ V	396.65 µ V	4.2844 m V	V	V	

Extra delay

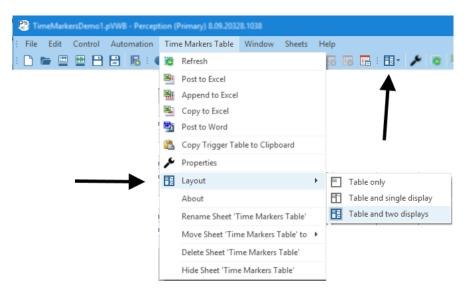
The **Extra delay** entry can be used when you are using the results of formulas as the content of the extra columns. Depending on the calculations behind a formula it can happen that a short delay (or waiting time) is needed, otherwise the program already modifies the published data sources like **StartTime** and **EndTime** before the calculations are ready, if this happens the result can be wrong. To prevent this you should do a measurement and check if the calculated results are correct, if not try to make the delay a little bit longer. You also can check if the results are OK by pressing the refresh



button several times the calculated results should not change. Modify the delay smaller or larger and repeat the refresh several times to find the best delay time.

4.4 Time Markers Table and Displays

You can link one or two displays to the time markers table. Those displays can be any display in Perception; however it is also possible to add new displays to the **Time Markers Table** sheet. Adding new displays can be done by changing the Layout of the sheet as you can see in the picture below.



In the properties dialog you can see to which displays the table is linked:

Misc	Time format	∆T format	Extra Columns					
Ţabl	e name:		Time markers table					
P	nts to be show] <u>T</u> riggers] <u>E</u> vent Marke							
<u>L</u> ink	to time domair	n Display 1:	Time Markers Table_Display1					
Link	to time domair	n Display 2:	Time Markers Table_Display2 $\qquad \lor$					
N R E	on time marke] Efter enable Mocards * and micolumn as i amples: *Ch4 ter:	d 1 ? can be un reparator.	ed, multiple filters can be entered using a .0:42"					

The time position of the linked display will change when you double click on a time marker in the time markers table.

Using two displays gives you the possibility to use the first display in **ReviewSweep** mode to show a specific sweep and use the second display in **Review** mode to see the complete recording (see picture below).



Lip 07/57/10.790 0.0000 1 Recording Start Immem.		Time (Local)	ΔT (s)	S	Info	Туре	Ch A1	Ch A2	Ch A3	÷	ReviewSweep				_
07:57:22.49 1.3199 7 Channel Trigger Ch A01 201.18 m V 6.1749 m V 5.7352 m V 1 7 07:57:22.6.54 1.6003 8 Channel Trigger Ch A02 1.0229 m V 308.00 m V 949.07 µ V 1 07:57:22.6.546 619.79 m 9 Channel Trigger Ch A02 1.0229 m V 308.00 m V 949.07 µ V 1 07 07:57:22.6.546 880.18 m 10 Channel Trigger Ch A02 -3.6166 300.66 m V 4.3677 m V 1 07 07:57:28.071 17.281 10 Recording End TmeM -2.2910 4.3873 m V 4.3677 m V 1 12 07:57:28.071 17.281 10 Recording End TmeM -2.2910 4.3873 m V 4.3677 m V 1 12 Page 1 I I IIII meM -2.2910 4.3873 m V -3677 m V 1 13 mcM -2.2910 4.3873 m V -3677 m V 1 IIII meM -2.2910 4.3677 m V IIIII meM -0.66 f IIII meM IIIII meM -0		07:57:10.790	0.0000	1	Recording Start	TimeM				la l	Ch A01	Max (5)	5 V		
07:57:224.94 1.319 7 Channel Trigger Ch A01 201.18 m V (6.174 m V 5.7352 m V 1 1 07:57:25.6546 1.6003 8 Channel Trigger Ch A02 1.0229 m V 308.00 m V 949.07 µ V 1 1 07:57:27.8046 880.18 m 10 Channel Trigger Ch A02 1.0229 m V 308.00 m V 949.07 µ V 1 1 07:57:27.8046 880.18 m 10 Channel Trigger Ch A02 -3.6166 300.66 m V 4.3677 m V 1 1 C 07:57:28.071 17.281 10 Recording End TmeM -2.2910 4.8393 m V 4.3677 m V 1 1 E 07:57:28.071 17.281 10 Recording End TmeM -2.2910 4.8393 m V 4.3677 m V 1 1 E 07:57:28.071 17.281 10 Recording End TmeM -2.2910 4.8393 m V 4.3677 m V 1 1 E 07:57:28.071 17.281 10 Recording End TmeM -2.2910 4.8393 m V 4.3677 m V 1 1 Feed (6.) 0.1 V V V V V IIII PHO V V V V V V </td <td>•</td> <td>07:57:18.326</td> <td>0.0000</td> <td>1</td> <td>Channel Trigger</td> <td>Ch A01</td> <td>201.85 m V</td> <td>9.5137 m V</td> <td>7.1026 m V 1</td> <td>isp</td> <td> V</td> <td>CITACIT: 1.514</td> <td></td> <td></td> <td></td>	•	07:57:18.326	0.0000	1	Channel Trigger	Ch A01	201.85 m V	9.5137 m V	7.1026 m V 1	isp	V	CITACIT: 1.514			
07:57:27:49.46 1.3198 7 Channel Trigger Ch A01 201.18 m V 6.1749 m V 5.7352 m V 1 07:57:27.65.46 1.6003 8 Channel Trigger Ch A02 1.0229 m V 308.00 m V 949.07 µ V 1 07:57:27.84.06 640.19 m V 0 Ch A02 1.0229 m V 308.00 m V 949.07 µ V 1 T 07:57:27.16 640.18 m V 1.027 1.5 m V 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM -2.2910 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM -2.2910 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM -2.2910 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM -2.2910 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM -2.2910 4.3677 m V 1 E		07:57:19.206	880.23 m	2	Channel Trigger	Ch A02	10.965 m V	308.67 m V	5.0514 m V 1		V			****	
07:57:224.546 1.3198 7 Channel Trigger Ch A01 201.18 m V 6.1748 m V 5.7352 m V 1 07:57:226.546 1.6003 8 Channel Trigger Ch A02 1.0229 m V 308.00 m V 949.07 µ V 1 07:57:228.046 630.79 m 9 Channel Trigger Ch A02 1.0229 m V 308.00 m V 949.07 µ V 1 07:57:27.80.048 880.18 m 10 Channel Trigger Ch A02 -3.6166 300.66 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM -2.2910 4.3893 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM -2.2910 4.3877 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM -2.2910 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM -2.2910 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM		07:57:20.526	1.3198	3	Channel Trigger	Ch A01	201.85 m V	1.5005 m V	4.3677 m V 1	ê				Min (5)	
07:57:28.046 1.518 7 Channel Trigger Ch A01 201.18 m V 6.7249 m V 5.7352 m V 1 07:57:26.546 1.6003 8 Channel Trigger Ch A02 1.0229 m V 308.00 m V 949.07 m V 1 07:57:27.266 619.79 9 Channel Trigger Ch A01 207.15 m V 4.8393 m V 6.4189 m V 1 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End (5.00 m V 10 m		07:57:22.126	1.6002	4	Channel Trigger	Ch A02	1.6857 m V	302.66 m V	3.0002 m V 1	ar	Ch A02			Ch A01: -1.51	211 V
07:57:28.046 1.518 7 Channel Trigger Ch A01 201.18 m V 6.7249 m V 5.7352 m V 1 07:57:26.546 1.6003 8 Channel Trigger Ch A02 1.0229 m V 308.00 m V 949.07 m V 1 07:57:27.266 619.79 9 Channel Trigger Ch A01 207.15 m V 4.8393 m V 6.4189 m V 1 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End (5.00 m V 10 m		07:57:22.746	619.79 m	5	Channel Trigger	Ch A01	203.17 m V	-502.78 μ V	4.3677 m V 1	Σ	V				
07:57:28.046 1.518 7 Channel Trigger Ch A01 201.18 m V 6.7249 m V 5.7352 m V 1 07:57:26.546 1.6003 8 Channel Trigger Ch A02 1.0229 m V 308.00 m V 949.07 m V 1 07:57:27.266 619.79 9 Channel Trigger Ch A01 207.15 m V 4.8393 m V 6.4189 m V 1 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V 1 E 07:57:28.071 17.281 10 Recording End (5.00 m V 10 m		07:57:23.626	880.21 m	6	Channel Trigger	Ch A02	1.6857 m V	303.33 m V	2.3165 m V 1	Ē	V				
07:57:27.166 619.79 m 9 Channel Trigger Ch A01 207.15 m V 4.8393 m V 6.4189 m V 1 07:57:28.046 880.18 m 10 Channel Trigger Ch A02 -3.6166 300.66 m V 4.3677 m V 1 2 07:57:28.071 17.281 10 Recording End TmeM 2.2910 4.8393 m V 4.3677 m V 1 Sweep#: 5 -05.32 ms 3.113 ms/dlv Page 1		07:57:24.946	1.3198	7	Channel Trigger	Ch A01	201.18 m V	6.1749 m V	5.7352 m V 1	-					
07:57:28.071 10 Channel Trigger Ch A02 ••••••• ••••••• ••••••• •••••••• •••••••		07:57:26.546	1.6003	8	Channel Trigger	Ch A02	1.0229 m V	308.00 m V	949.07 µ V 1		Ch A03				
0/157/28.046 680.18 m 10 Channel ingger Ch A02 -3.6166 300.66 m V 4.367/m V 07:57/28.071 17.281 10 Recording End TimeM2.2910 4.8393 m V 4.3677 m V Sweep≠: 5 -05.32 ms 3.113 ms/div Page 1		07:57:27.166	619.79 m	9	Channel Trigger	Ch A01	207.15 m V	4.8393 m V	6.4189 m V 1						
Every product of the second	•	07:57:28.046	880.18 m	10	Channel Trigger	Ch A02	-3.6166	300.66 m V	4.3677 m V 1		V				
Page 1 ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ●		07:57:28.071	17.281	10	Recording End	TimeM	-2.2910	4.8393 m V	4.3677 m V -		Sween#: 5 -05 3	2 ms	3 113 m	s/div	25
Image: Ch A01 Image: Ch A02 Image: Ch A03 Image: Ch A03<										Ā					25.808081 m
Same Same <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Display</td><td><mark>Ch A01</mark> ■ V ■ V</td><td> · </td><td></td><td>· [</td><td></td></td<>										Display	<mark>Ch A01</mark> ■ V ■ V	·		· [
Ch A03 End (5) [®] V Start (5) [®] 11.9809 s												- 1 -		•	
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8 9 5 10 5 11 5 12 5 13 5 14												8s 9s 1	0s 11s 12	s 13 s 14 s	15 s 16 s

4.5 Time Markers Table toolbar

The time marker table has its own toolbar. The toolbar looks like:

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- A. Change the sheet Layout
- **B.** Edit properties of the time markers table
- C. Refresh time markers table, all data will be read again and also recalculated
- D. Post to Excel
- E. Append to Excel
- **F.** Copy to Excel
- G. Post to Word
- H. Copy to Clipboard

The items of the toolbar are also accessible via the Time Markers Sheet main menu.

4.6 Time Markers Table printing and reporting

The Time Markers Table can be used by the Perception Report page just like a normal user table. The following steps show you how to do this.

• Go to the Report sheet



- Add a table to the report sheet, use the tools button with icon
- Select Link to User Table in the properties window of the table
- Select as User Table Source the Time Markers Table

T001						
С) Link to Cursor table	(Link to	User table	•	
	Time markers ta	able				
% 22 % 30 %	44 % 50 % 58	% 67	% 75	% 83	% 91	%
	Selected rows	From: 1	A	1		
Time markers table ~	Selected rows Selected columns		to:			
		O Link to Cursor table	C Link to Cursor table	Link to Cursor table O Link to Cursor table Time markers table	Link to Cursor table	Link to Cursor table

• The table at you report will now be filled with the data from the Time Markers Table

					Tim	ne mar	kers ta	ble				
#	Time	ΔT (s)	Sweep	Info		Туре	Ch A1	Ch A2	Ch A3	Max Ch	Min Ch	Evaluat
1E	10:06:08.46	0.0000	1	Recordin	g Start	TimeMa	4.3523 m	6.4065 m V	7.7030 m	V	V	
1T	10:06:08.47	0.0000	1	Channel	Trigger	Ch A02	5.0151 m	310.91 m V	-2.5529 m	15.620 m	-10.229 m	FAILE
2T	10:06:09.09	619.82 m	2	Channel	Trigger	Ch A01	204.51 m	8.4098 m V	8.3867 m	1.5606 V	-1.5585 V	PASSE
3T	10:06:09.97	880.20 m	3	Channel	Trigger	Ch A02	-949.95 µ	303.56 m V	6.3355 m	16.282 m	-10.229 m	FAILE
4T	10:06:11.29	1.3198	4	Channel	Trigger	Ch A01	210.48 m	6.4065 m V	4.2844 m	1.5599 V	-1.5591 V	PASSE
5T	10:06:12.89	1.6002	5	Channel	Trigger	Ch A02	375.61 µ	302.23 m V	4.2844 m	18.271 m	-10.892 m	FAILE
6T	10:06:13.51	619.83 m	6	Channel	Trigger	Ch A01	206.50 m	2.3999 m V	11.122 m	1.5142 V	-1.5141 V	PASSE
71	10:06:14.39	880.20 m	7	Channel	Trigger	Ch A02	3.6895 m	300.22 m V	4.9681 m	15.620 m	-9.5661 m	FAILE
8T	10:06:15.71	1.3198	8	Channel	Trigger	Ch A01	201.86 m	6.4065 m V	2.2332 m	1.5599 V	-1.5578 V	PASSE
9T	10:06:17.31	1.6002	9	Channel	Trigger	Ch A02	3.0267 m	301.56 m V	3.6006 m	16.945 m	-10.892 m	FAILE
10T	10:06:17.93	619.83 m	10	Channel	Trigger	Ch A01	204.51 m	6.4065 m V	-1.1854 m	1.5162 V	-1.5121 V	PASSE
10E	10:06:17.95	9.4900	10	Recordin	g End	TimeMa	375.61 µ	396.65 µ V	4.2844 m	V	V	

The time marker table can also be used by the Perception Automation for posting to MS-Word. If you e.g. go to the **Quick Report to Word** menu, you will see that the Time Markers Table is available.

TimeMarkersTest007.	pnrf - Percepti	on (Primary	() 8.09.2032	8.1038		
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	Configu	re <u>L</u> ogfile				
	Add to L	ogfile			Ctrl+L	
	Clear Lo	gfile				
	📴 Open Lo	gfile in Exco	el			
	Process	Display			Ctrl+M	
	Setup Pr	ocess <u>D</u> ispl	ay		Ctrl+Shift+Alt+M	
	<u>R</u> ecordir	igs Batch P	rocessing		Ctrl+Shift+Alt+B	
	Automa	ted <u>R</u> ecordi	ng Process	ing		
	Merge F	les				
	Report to	o <u>W</u> ord				
>	<u>Q</u> uick Re	port to Wo	rd			
	<u>M</u> acro N	lanager				

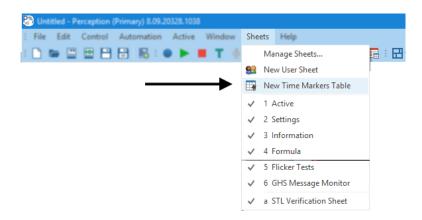


Quick Report to Word		×
Select the objects that you document. Use the up and o the order within the list.		
Perception Object	Туре	
🗹 Display	Display	
🗹 Time markers table	Table	
R	eport <u>n</u> ow	Close

4.7 Creating, Deleting and Renaming a Time marker Table

4.7.1 Creating

New Time Marker Tables can be created via the Sheets menu New Time Markers Table.



You can also do a right mouse click in the not used tab area (the area with red color below), from the shown content menu you can select the **New Time Markers Table** item.

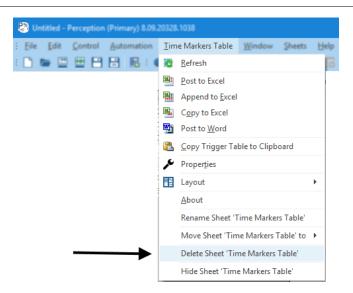
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fealth	Ch A01	0.0								
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You can create as many Time Marker Tables as you want.

4.7.2 Deleting

Via its own main menu called **Time Markers Table** you can select the Delete Sheet '**Time Markers Table**'. You can get the same menu when you right mouse click at the tab





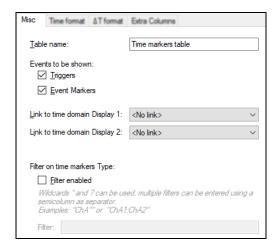
4.7.3 Renaming

The renaming can be confusing because in Perception terms we are dealing with a so called Sheet and the sheet contains a special user table called Time marker Table, both the sheet and the Time marker table have a name. By default the name of the sheet is **Time Markers Table** and is shown at the Tab of the sheet. The default name for the table is **Time markers table** you can find this name at the left side of the table.

Renaming the sheet works like all other Perception sheets, use the menu item **Rename Sheet 'Time Markers Table'** as shown in the above menu. The following dialog comes up:

Rename Sheet		×
Sheet name:	Time Markers Table	
	ОК	

For renaming the table you have to go to the properties dialog of the table, there you can change its name, see picture below.



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