

# m+p VibControl

# m+p VibUtil/Test Sequencing

With the m+p VibUtil add-on module, m+p VibControl offers a versatile tool for automating vibration tests such as combining vibration tests of identical or different test modes in any complexity of nested loops. The program can be paused and resumed at any time during the test to ensure a long test can be completed in sequence, even if interrupted mid-stream. During the test, online signals are displayed as the test progresses and evaluation can be carried out on completed measurements.

You can leave the system unattended and start an overnight or weekend run. During this time, m+p VibUtil can be configured to send email updates upon test completion or abort to a user-defined unlimited number of addressees.

m+p VibUtil can readily be extended to include up to eight digital input channels and four digital output channels which provide links to external equipment such as environmental chambers, for combined environmental testing. For example, if a digital channel is set by the climatic chamber after reaching a defined temperature, m+p VibUtil will start a new test or execute other commands corresponding to the current test schedule.

Proventional VibUtil - RTM_4ch	VibPilot_ResultfileAnalyser (Running)		_			
File Edit Protocol View Help	× <b>७</b> ∎⊐ • 0					
	Test Sequence Current Protocol File Digital Channels Settings					
Idle Selfcheck Running Standby	Test Sequence	Digital Channel	Setting			
Sequence Execution:	Set Var Utilities "C:\VcpNT\Daten\VibUtil\.\"	Create Profile				
<ul> <li>Start</li> </ul>	Set WorkingFolder "C:\VcpNT\Daten\VibUtil"	Input 1 High M Output 1 Runi				
Abort	Marker Loop A	Output 2 Offs	et 10 Off 10 On 20 High			
	Load 'RTM_4ch_Sine_1024L_8W1.00_20-2000Hz_LPF.tsn" Profile 1	End Create Profile				
III Standby	Wait 5	Input 1 High S				
Email:	Shell "\$(Utilities)\CopyLogFile.exe"	End Create Profile	Amplifiar			
Status Email to:	Shell "\$(Utilities)\Resultfile Analyser.exe"	en prima				
	Load "RTM_4ch_Random_3200Hz_800Ltrn" Profile 2	End				
	Current Protocol File	Status Report				
Digital Channel:	09:39:11: Marker of Loop <marker a="" loop=""> found.</marker>	Digital Output Offs	et: 00:00:00			
Status Digital Input	09:39:16:	Digital Output Off:	00:00:00			
1 2 3 4 5 6 7 8	09:39:16: Load: "RTM_4ch_Sine_1024L_BW1.00_20+2000Hz_LPF.tsn" 09:39:27: Loading Test for selfcheck		00:00:10			
	09/39/27: Loading lest for sericiteox	Digital Output On:				
Status Digital Output 1 2 3 4 5 6 7 8	09/39/41: Test execution started	Trigger event: Running Output: 1 - Slope: High				
1 2 3 4 5 6 7 8 • • • • • • • • •	09:39:50: Test is currently executed					
	09:39:50: Trigger event: Running - Set <digital 1="" output="">: High</digital>					
	×					
	Elapsed Time: 00:00:18 Remaining Time: 00:01:07 Sweep Direction:	down	Loop <a> Repetition D</a>	one <0/10>		
	Test: RTM 4ch Sine 1024L BW1.00 20-2000Hz LPF.tsn		22.05.20	017 09:40:01		

Automated vibration testing

# **Key Features**

- Powerful tool for automated vibration testing
- Combining tests of identical or different modes into one test sequence
- Automated vibration test progress monitoring
- Test sequence event feedback via email to PC or mobile phone
- Repetition of sequence parts by means of loops
- Test sequencing program can be paused or resumed at any time and can be started with any line
- Test sequence protocol available
- Digital input and output channels for interaction with external equipment (m+p Advanced VibUtil)
- Start and shutdown of power amplifier via digital channel setting (m+p Advanced VibUtil)

## Applications

- Long-term durability testing
- Unattended vibration test progress monitoring
- Combined environmental testing (e.g. in a climatic chamber)

# m+p VibUtil (Standard)

The standard m+p VibUtil package contains all functions required for easy-to-use test sequencing, unattended vibration testing with feedback via email, as well as error handling. The program supports all test modes that do not require user interaction: sine, sine dwell, random, shock, shock response spectrum, mixed mode, time domain replication (road load simulation), sine reduction, random reduction and transient capture.

m+p VibUtil will carry out the commands entered by the user line by line. The stored test sequence set-up file can be loaded and run whenever desired. The loop function enables the user to repeat complete tests or certain parts of the sequence.

When the system is left unattended, m+p VibUtil can be set to send an email to the user-defined addressees upon test abort or completion. A protocol file documenting key test events is attached to the email.

In addition, m+p VibUtil is able to start external programs such as Microsoft Word or Excel among others.

Test sequences from previous m+p VibUtil versions can be imported.

😪 m+p international VibUtil - RTM_4ch_VibPilot_ResultfileAnalyser_NoDig (Running) —					
File Edit Protocol View Help					
Idle Selfcheck Running Standby	Test Sequence Current Protocol File Settings Test Sequence - CAVcoNT\Daten\VibUtilRTM 4ch VibPilot ResultfileAnalyser NaDiaxibseq				
Sequence Execution:	Set WorkingFolder "C\VcpNT\Daten\VibUtil"		^		
Start  Abort  Standby	Load "RTM_4ch, Sine_1024L_BW1.00_20-2000Hz_LPF.tsn" Wait 5 Tour 1701M-4ch, Runslam, 5200Hz (020Lana"				
Email: Status Email to:	Wait 5 Marker A Load 'RTM_4ch_Random_3200Hz_800Ltm"		v		
Digital Channel:           Status Digital Input           1         2         3         4         5         6         7         8           Status Digital Output           1         2         3         4         5         6         7         8           Status Digital Output         1         2         3         4         5         6         7         8	Current Protocol File Status Report 10:49:36: Test is running 10:51:08: Test execution ended according to schedule 10:51:25: Load: "RTM_4ch_Random_3200Hz_800L.trm" 10:51:45: Result file: "RTM_4ch_Random_3200Hz_800L_015:rrm" 10:51:45: Selfcheck successful 10:51:46: Test execution is started				
	10.51:46: Test is running	2> of Loop <a> dc 26.09.201</a>	one 7 10:51:50		

m+p VibUtil test sequence schedule

- Supported test modes: sine, sine dwell, random, shock+, shock-, SRS+, SRS-, SoR, RoR, SoRoR, time domain replication (road load), sine reduction, random reduction, transient capture
- Loop function for automatically repeating parts of the test sequence
- Status email can be sent upon test abort or completion to an unlimited number of recipients with protocol file attached
- Automatic repetition of unsuccessful selfchecks every user-defined number of seconds, function can be disabled
- Working folder definition for faster test loading procedures
- Start of external programs (Microsoft Word, Excel, etc.)

- Utility folder definition for quick access to external programs
- Flexible start of the test sequence by defining a delay
- Error routine: test sequence stops, next command will be executed, interrupted test restarts at the same point x times, test restarts at the beginning
- Inactive test definitions can be viewed and modified during the active test sequence
- Test results can be analysed in VibPostTest during the test sequence run
- Import of test sequences from previous m+p VibUtil versions

### m+p Advanced VibUtil

The m+p Advanced VibUtil package provides the complete functionality of the standard m+p VibUtil software and, additionally, supports up to eight digital input channels and four digital output channels which provide links to external equipment. For example, if a digital channel is set by the climatic chamber after reaching a defined temperature, m+p Advanced VibUtil starts a new test or executes other commands corresponding to the current test schedule.

For the digital channel configuration m+p Advanced VibUtil provides time driven profiles and event driven profiles. Time driven profiles set a channel state after a certain time interval has elapsed. Event driven profiles allow the user to define channel states which are set as soon as the defined event takes place. The definitions are stored and added to the test schedule. During the test sequence the user can still modify the test modes and the sequence profiles as long as they are not active. Current data can be viewed in VibRunner and result file data analysed in VibPostTest. Using these profiles, even complex environmental tests having a multitude of variables can be combined into a single test sequence.

For example, m+p Advanced VibUtil is used for automatic vibration testing of a car's headlamp in a climatic chamber where different temperatures and different switching states of the specimen (driving beam, dipped beam, parking light and indicator) have to be simulated at the same time.

A test can also be defined such that it will pause if the output channel is switched off. This function is used, to simulate a truck ride: 8 h sine sweep, 1 h pause, 8 h sine sweep, 1 h pause, ...

With m+p Advanced VibUtil, the user can automatically control the power amplifier, i.e. shut it down at the test end and switch it on when a new vibration test is to be started. It is also possible to interrupt the test and shut down the power amplifier.

- All functions of the standard m+p VibUtil software
- Support of 8 digital input channels and 4 digital output channels
- Event driven digital output:
  - channel setting depending on certain input channel state
  - channel setting upon trigger condition which has been met
- Time driven digital output: offset/on/off in seconds for each output channel
- Power amplifier profile: automatic switching on/off
- User-defined inverse setting of the digital input channels

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File Edit Protocol View Help												
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	Test Sequence	Current Protocol File	Digital Channe	ls Settings								
Idle Selfcheck Running Standby	Add Remov	re										
Sequence Execution:	Name	Channel Setting										
▶ Start	Profile 1	Input	1 💌	if channel is	HIGH	-	do:	Abort	•			
Abort	Profile 1	Output	1 👻	Event	trigger co	ndition:	Running	▼ set output:	HIGH	•		
II Standby	Profile 2	Input	1 👻	if channel is	HIGH	•	do:	Start Test	-			
Email: Status Email to:	Profile Amplifier	Output	4 🔻	Amplifier	set outpu	t	HIGH	-				
	Profile 1	Output	2 💌	Time	offset [s]:	10	off [s]: 10	) on [s]: 20	set output		HIGH	•
Digital Channel:												
Status Digital Input												
1 2 3 4 5 6 7 8 • • • • • • • • • •												
Status Digital Output												
1 2 3 4 5 6 7 8												
	1											
	Elapsed Time:	00:00:00	Remaining T	ime:	00:00:00	Curren	t Level:	0 dB				
	Test:								1	22.05.2	2017 09:	:38:22

Digital channel configuration



### **Operating System**

Microsoft Windows 7 Pro and Windows 10 Pro 32 or 64 bit

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