Guide to MI 3325
MultiServicerXD

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METREL®

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1. Introduction

The purpose of this document is to present a complete application solution of the MI 3325 MultiServicerXD instrument with associated optional accessories. It will be shown how to connect optional accessories to the instrument and how to use them for measurement purposes. Part of this document is intended for the preparation and use of user-defined AutoSequences® together with the use of work-flow commands, and the use of user-customized visual inspections.

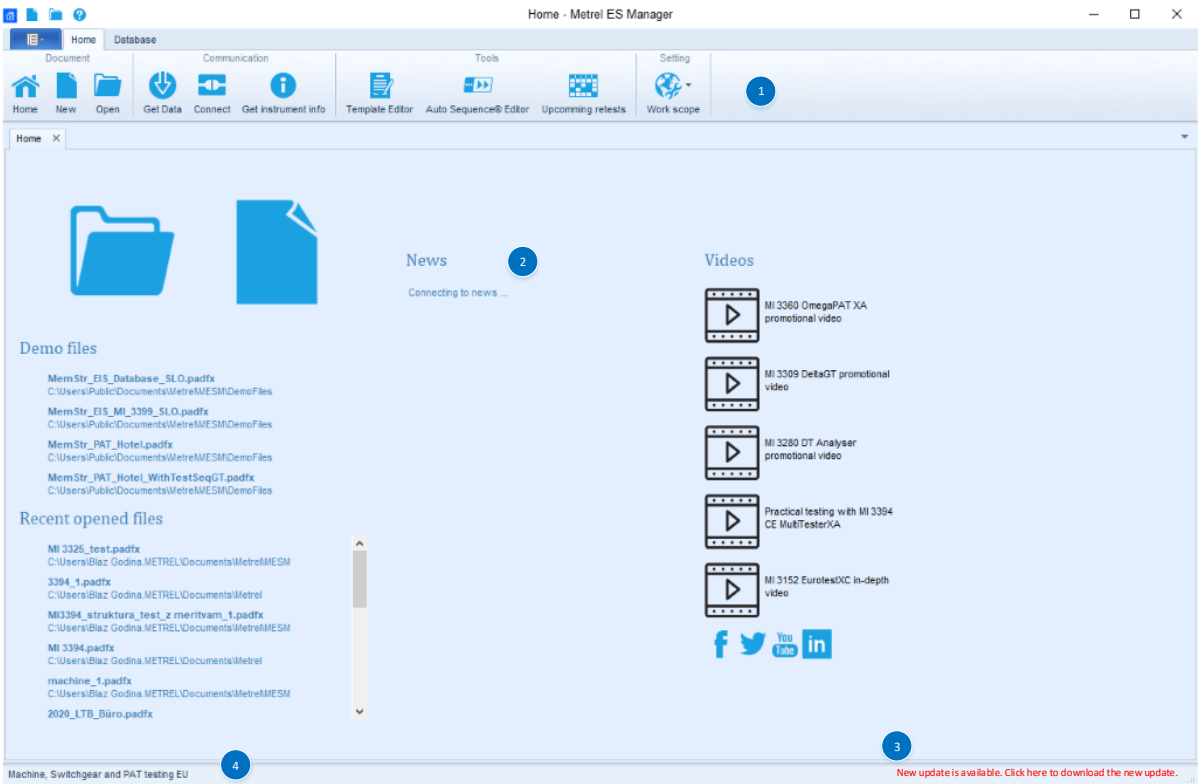
2. Getting started

2.1. MetrelElectricalSafetyManager

Metrel Electrical Safety Manager is a common PC software application for management of the new generation of Metrel's instruments. The wide palette of Metrel's electrical safety testers, portable appliance testers, machine testers and industrial safety testers can be managed by one single application. It has a unified user interface with the new generation of Metrel's instruments – same view same meaning.

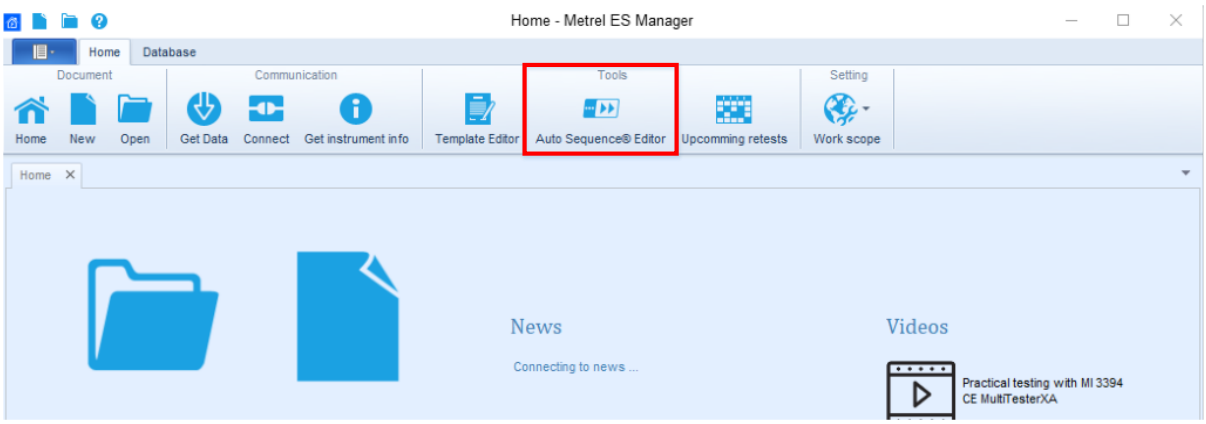
2.2. Introduction

After start-up, Metrel ES Manager Welcome screen appear with Menu tabs (❶) on the top and Home tab active in the working area (❷). When connected to the internet, update status presented in bottom right corner (❸) is automatically checked. Default scope of work area is displayed in the bottom left corner of the window (❹). Check Work scope setting before start a new data structure file. When existing data structure file is opened, Work scope is automatically set.



3. Auto Sequence® Editor

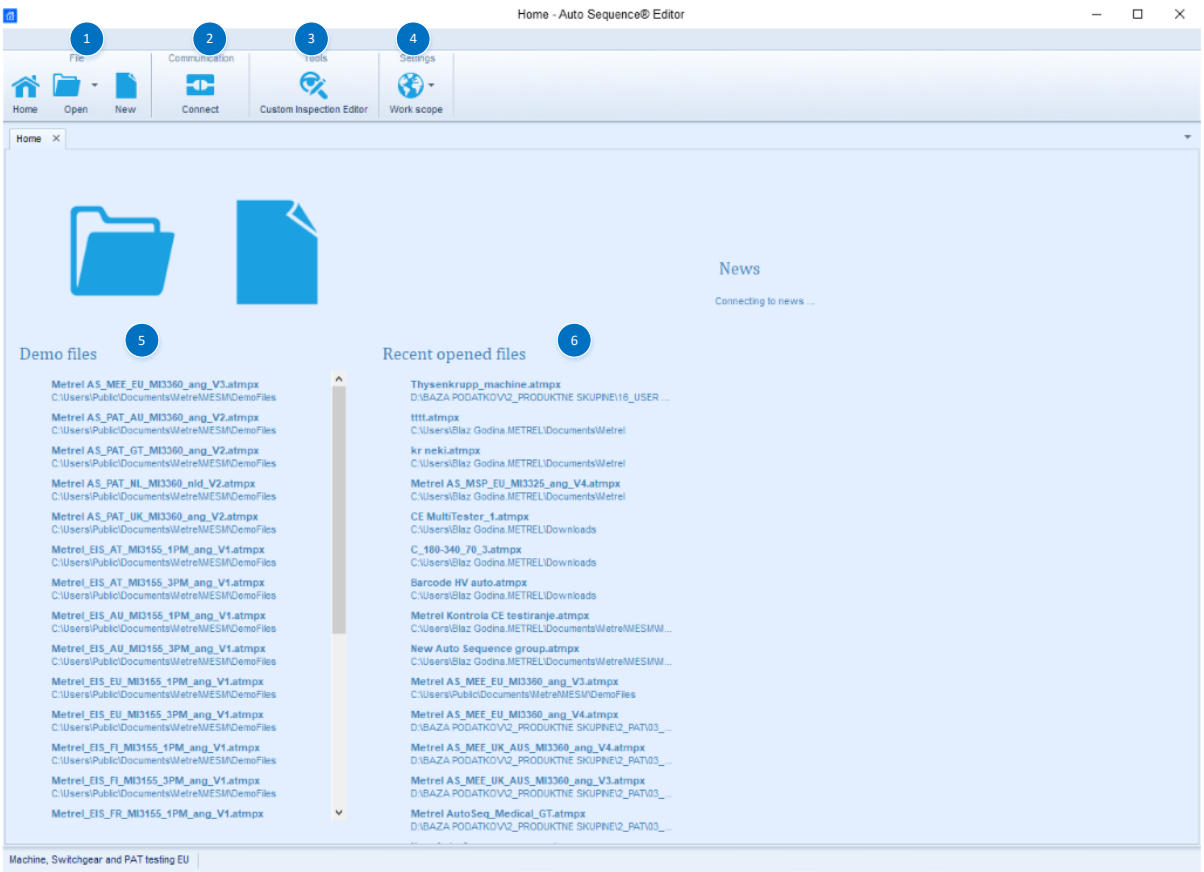
Auto Sequence® editor is available from Tools group of MESM Home tab menu.



3.1. Introduction of Auto Sequence® editor

3.1.1. Main window

After start-up, Auto Sequence ® editor Welcome screen appear with following tools (❶) File, (❷) Communication, (❸) Tools, (❹) Settings, (❺) Demo files, (❻) Recent opened files.



3.2. Creating new Auto Sequence

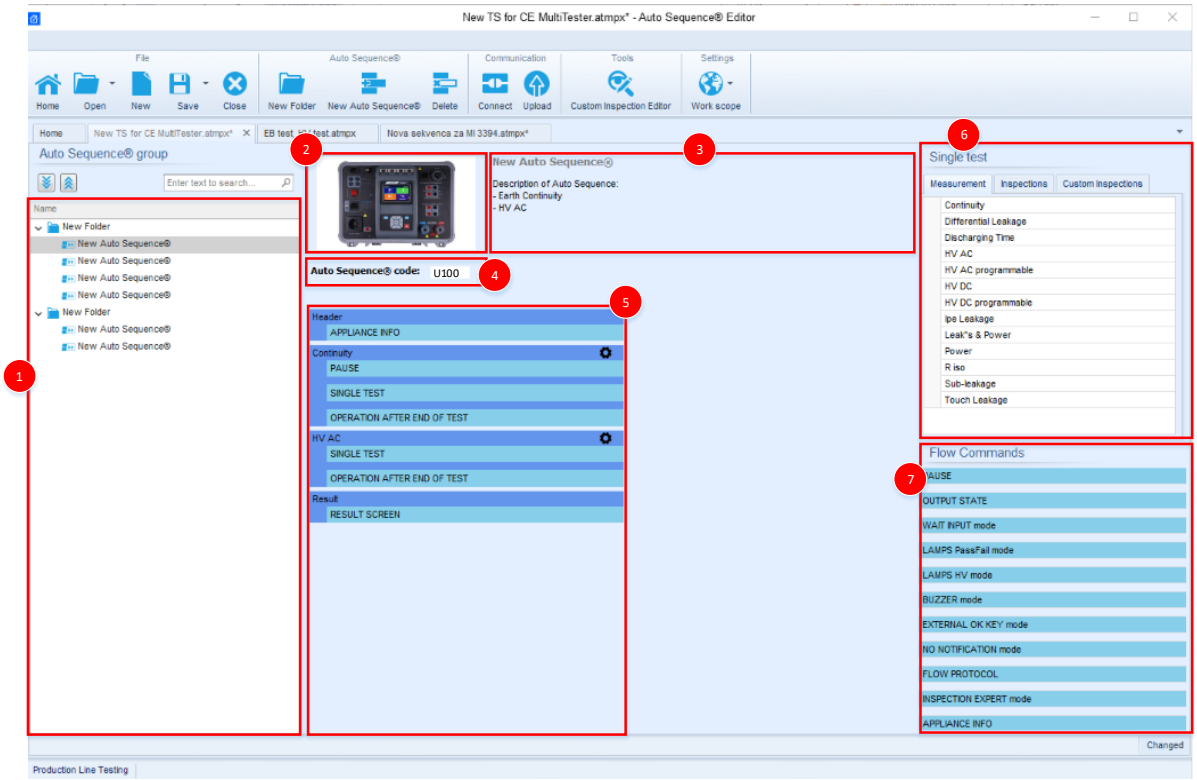
Before creating a new test sequence, it is necessary to select the correct Work scope. The Work scope selected, must be the same as the Work scope in which the instrument we intend to use operates.
The work scope → *Safety of electrical equipment I → Machine, Switchgear and PAT testing EU* will be used to present the demo test sequence.
This is the work scope dedicated to MultiServicerXD and PAT instruments.

1. Select correct Work Scope (same as used on target instrument)
2. Select New file

3.3. Description of Auto Sequence® group working area

Main screen of new Auto Sequence® consists of following modules, parts:

1. **List of available test sequences**; for better transparency and structuring, the test sequences can be organized in a tree structure including folders and subfolders,
2. **Picture dedicated to the selected test sequence**; each test sequence can be equipped with an image, the image is displayed in the PC SW only,
3. **Description of the selected test sequence**; a description can be added to the test sequence, this will be displayed in the PC SW and in the test sequence header on the measuring instrument,
4. **Test sequence, custom specified short code**; a test sequence code will be displayed in the test sequence header on the measuring instrument. Test sequence short code can be used for search of test sequence inside the Auto Sequences® menu of the measuring instrument,
5. **Tests and flow commands of selected test sequence**; the entire workflow of the test sequence including all associated flow commands is listed in this section,
6. **Lists of available Measurements, Inspections and Custom Inspections**; in this section measurements, inspections and custom inspections available for specific work scope are listed,
7. **List of available flow commands**; flow commands available for specific work scope are listed here.



3.4. Elements of an Auto Sequence ®

3.4.1. Auto Sequence® steps

There are three kinds of Auto Sequence® steps.

Header

The Header step is empty by default.
Flow commands can be added to the Header step.

Measurement step

The Measurement step contains a Single test and the Operation after end of test flow command by default. Other Flow commands can also be added to the Measurement step.

Result

The Result step contains the Result screen flow command by default. Other Flow commands can also be added to the Result step.

3.4.2. Single tests

Single tests are the same as on MI 3325 MultiServicerXD Single tests menu.
Limits and parameters of the measurements can be set. Results and sub-results can't be set.

Measurement menu is divided in 5 subgroups, each containing some specific and generic measurements for certain application.

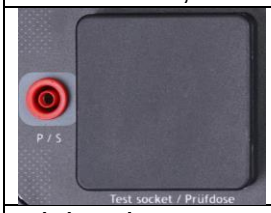
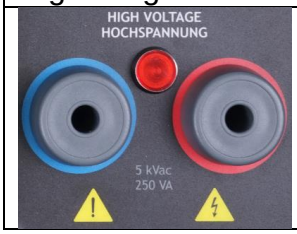
Notes!
When creating custom AutoSequences®, care must be taken to select the appropriate single test according to the test terminal through which the test will be performed on the instrument.

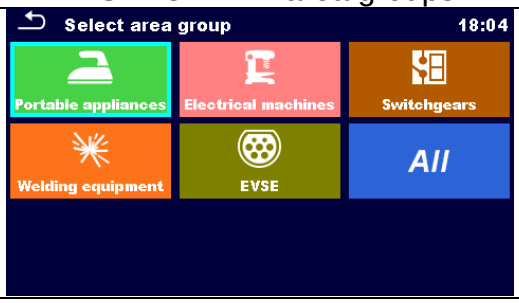
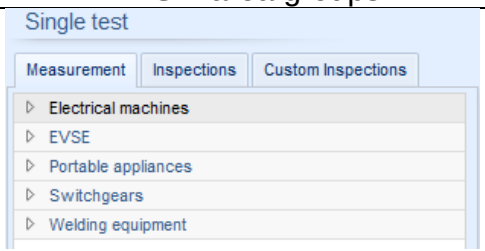
The test instrument supports various active adapters, certain measurements are only supported in combination with a specific active adapter and/or through measuring adapter test terminals. The information in the table below, given in blue, describes measurements that are supported using active adapters.

Supported active adapters:

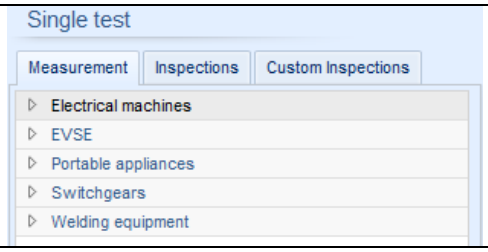
- A 1143 Euro - Z 290 A,
- MI 3143 Euro Z 440 V,
- MI 3144 Euro Z 800 V,
- A 1632 eMobility Analyser
- A 1322 Active 3-phase Adapter
- A 1422 Active 3-phase Adapter Plus
- A 1460 CE Adapter

Test terminals:

Test socket, Probe,	IEC	Continuity 4W
		
High voltge	**TP1 (Test terminal)**	**Clamp current**
		

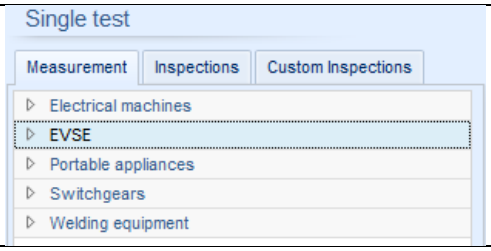
INSTRUMENT area groups	MESM area groups
	

Electrical machines

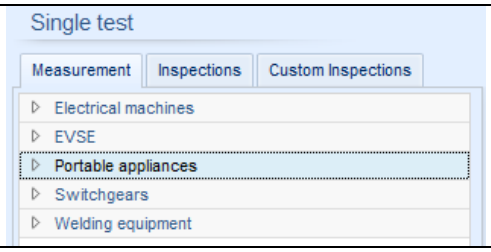
<table>
<tr><td>Electrical machines (Available single tests)</td><td colspan="3"> 
</td></tr>
<tr><td colspan="4">Electrical machines (Test instrument only)</td></tr>
<tr><td colspan="2">Test socket / Test socket – IEC</td><td colspan="2">TP1 (test terminal)</td></tr>
<tr><td colspan="2">• Continuity (P/S-PE),
• Continuity (MS_PE-IEC_PE), Socket – IEC,
• Riso (Riso, Riso-S),
• Differential Leakage,
• Ipe Leakage,
• Sub-leakage,
• Touch Leakage,
• Leak’s & Power,
• Power.</td><td colspan="2">• Rpe,
• R low,
• RCD Auto, RCD I, RCD t, RCD Uc,
• R iso,
• Varistor,
• Discharging time,
• Voltage Drop
• Voltage
• Z auto, Z line, Z loop, Zs rcd.</td></tr>
<tr><td>4W-Continuity (test terminals)</td><td>HV (test terminals)</td><td colspan="2">Current clamp</td></tr>
<tr><td>• Continuity 4wire</td><td>• HV AC,
• HV AC programmable.</td><td colspan="2">• Clamp current (optional clamps)</td></tr>
<tr><td colspan="4">Current clamp Bluetotth (optional MD 9273) supported from FW version xxxx</td></tr>
<tr><td colspan="4">• Curren CLAMP
• Harmonics I CLAMP
• Harmonics U CLAMP
• Inrush CLAMP
• Power CLAMP
Voltaeg CLAMP</td></tr>
<tr><td colspan="4">Electrical machines (Test instrument + A 1143)
The test instrument is used only to control the adapter and to display the test results. All connections and measurements are made on the adapter.</td></tr>
<tr><td colspan="4">• Z line mΩ
• Z loop mΩ</td></tr>
<tr><td colspan="4">Electrical machines (Test instrument + MI 3143)
The test instrument is used only to control the adapter and to display the test results. All connections and measurements are made on the adapter.</td></tr>
<tr><td colspan="4">• High Current
• Z line mΩ
• Z loop mΩ
• U touch</td></tr>
<tr><td colspan="4">Electrical machines (Test instrument + MI 3144)
The test instrument is used only to control the adapter and to display the test results. All connections and measurements are made on the adapter.</td></tr>
<tr><td colspan="4">• Current Clamp Meter
• ELR Current Injection Test
• ELR Combination Time Test
• R line mΩ
• High Current
• Z line mΩ
• Z loop mΩ
• U touch</td></tr>
<tr><td colspan="4">Electrical machines (Test instrument + A 1322 / A 1422)</td></tr>
</table>

The test instrument is used as a master instrument to control the adapter and to display the test results. Connections and measurements are made on the adapter.
• Continuity (P/S-PE), Socket 3ph - Socket 3ph **(A 1322 / A 1422),** • Riso (Riso, Riso-S), • Differential Leakage, • Sub-leakage, • Touch Leakage • Power (P, Q, S, PF).
Electrical machines (Test instrument + A 1460 CE Adapter)
Test socket A 1460
• Continuity (P/S-PE), • Continuity 4wire, • HV AC, **(up to 1.5kV),** • HV AC programmable **(up to 1.5kV),** • Riso (Riso, Riso-S), • Differential Leakage, • Ipe Leakage, • Sub-leakage, • Touch Leakage, • Leak's & Power, • Power.

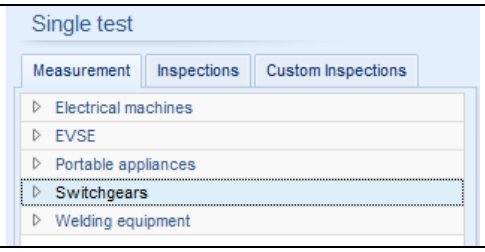
EVSE

EVSE (Available single tests)	
EVSE (Test instrument only)	
TP1 (test terminal)	
• R iso, • Rpe, • RCD Auto, RCD I, RCD t, RCD Uc, • R low, • Voltage Drop • Voltage • Z auto, Z line, Z loop, Zs rcd.	
Current clamp ***Bluetotth*** (optional MD 9273) **supported from FW version xxxx**	
• Curren CLAMP • Harmonics I CLAMP • Harmonics U CLAMP • Inrush CLAMP • Power CLAMP • Voltaeg CLAMP	
EVSE (Test instrument + A 1632) *The test instrument is used only to control the adapter and to display the test results. All connections and measurements are made on the adapter.*	
• Diagnostic Test (EVSE)	

Portable appliances

<table>
<tr><td>Portable appliances (Available single tests)</td><td colspan="3"> 
</td></tr>
<tr><td colspan="4">Portable appliances (Test instrument only)</td></tr>
<tr><td>Test socket / Test socket - IEC</td><td colspan="3">TP1 (test terminal)</td></tr>
<tr><td>• Continuity (P/S-PE),
• Continuity (MS_PE-IEC_PE), Socket – IEC,
• Riso (Riso, Riso-S),
• Differential Leakage,
• Ipe Leakage,
• Sub-leakage,
• Touch Leakage,
• Leak’s & Power,
• Power,
• Polarity, Socket – IEC,
• Active Polarity, Socket – IEC,
• PE_conductor (PRCD).</td><td colspan="3">• RCD (Not supported by this instrument!!!)</td></tr>
<tr><td>4W-Continuity (test terminals)</td><td>HV (test terminals)</td><td colspan="2">Current clamp</td></tr>
<tr><td>• Continuity 4wire</td><td></td><td colspan="2">• Clamp current (optional clamps)</td></tr>
<tr><td colspan="4">Current clamp Bluetotth (optional MD 9273) supported from FW version xxxx</td></tr>
<tr><td colspan="4">• Curren CLAMP
• Harmonics I CLAMP
• Harmonics U CLAMP
• Inrush CLAMP
• Power CLAMP
Voltaeg CLAMP</td></tr>
<tr><td colspan="4">Portable appliances (Test instrument + A 1322 / A 1422)
The test instrument is used as a master instrument to control the adapter and to display the test results. Connections and measurements are made on the adapter.</td></tr>
<tr><td colspan="4">• Continuity (P/S-PE), Socket 3ph - Socket 3ph,
• Riso (Riso, Riso-S),
• Differential Leakage,
• Polarity, Socket 3ph - Socket 3ph,
• Active Polarity (Wiring map), Socket 3ph - Socket 3ph,
• PRCD (RCD-t, type: A, AC, B, B+, F), Socket 3ph - Socket 3ph,
• Sub-leakage,
• Touch Leakage,
• Power (P, Q, S, PF).</td></tr>
<tr><td colspan="4">Portable appliances (Test instrument + A 1460 CE Adapter)</td></tr>
<tr><td colspan="4">Test socket A 1460</td></tr>
<tr><td colspan="4">• Continuity (P/S-PE),
• Continuity 4wire,
• Riso (Riso, Riso-S),
• Differential Leakage,
• Ipe Leakage,
• Sub-leakage,
• Touch Leakage,
• Leak’s & Power,
• Power.</td></tr>
</table>

Switchgears

<table>
<tr><td colspan="2">Switchgears (Available single tests)</td><td> 
</td></tr>
<tr><td colspan="3">Switchgears (Test instrument only)</td></tr>
<tr><td colspan="2">Test socket / Test socket – IEC</td><td>TP1 (test terminal)</td></tr>
<tr><td colspan="2">• Continuity (P/S-PE),
• Continuity (MS_PE-IEC_PE), Socket – IEC,
• Riso (Riso, Riso-S),
• Differential Leakage,
• Ipe Leakage,
• Sub-leakage,
• Touch Leakage,
• Leak’s & Power,
• Power.</td><td>• Rpe,
• R low,
• RCD Auto, RCD I, RCD t, RCD Uc,
• R iso,
• Varistor,
• Discharging time,
• Voltage Drop
• Voltage
• Z auto, Z line, Z loop, Zs rcd.</td></tr>
<tr><td>4W-Continuity (test terminals)</td><td>HV (test terminals)</td><td>Current clamp</td></tr>
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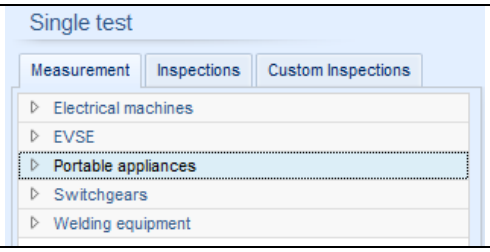
• HV AC programmable.</td><td>• Clamp current (optional clamps)</td></tr>
<tr><td colspan="3">Current clamp Bluetotth (optional MD 9273) supported from FW version xxxx</td></tr>
<tr><td colspan="3">• Curren CLAMP
• Harmonics I CLAMP
• Harmonics U CLAMP
• Inrush CLAMP
• Power CLAMP
Voltaeg CLAMP</td></tr>
<tr><td colspan="3">Switchgears (Test instrument + A 1143)
The test instrument is used only to control the adapter and to display the test results. All connections and measurements are made on the adapter.</td></tr>
<tr><td colspan="3">• Z line mΩ
• Z loop mΩ</td></tr>
<tr><td colspan="3">Switchgears (Test instrument + MI 3143)
The test instrument is used only to control the adapter and to display the test results. All connections and measurements are made on the adapter.</td></tr>
<tr><td colspan="3">• High Current
• Z line mΩ
• Z loop mΩ
• U touch</td></tr>
<tr><td colspan="3">Switchgears (Test instrument + MI 3144)
The test instrument is used only to control the adapter and to display the test results. All connections and measurements are made on the adapter.</td></tr>
<tr><td colspan="3">• Current Clamp Meter
• ELR Current Injection Test
• ELR Combination Time Test
• R line mΩ
• High Current
• Z line mΩ
• Z loop mΩ
• U touch</td></tr>
<tr><td colspan="3">Switchgears (Test instrument + A 1322 / A 1422)
The test instrument is used as a master instrument to control the adapter and to display the test results. Connections and measurements are made on the adapter.</td></tr>
<tr><td colspan="3">• Continuity (P/S-PE), Socket 3ph - Socket 3ph (A 1322 / A 1422),</td></tr>
</table>

• Riso (Riso, Riso-S), • Differential Leakage, • Sub-leakage, • Touch Leakage • Power (P, Q, S, PF).
Switchgears (Test instrument + A 1460 CE Adapter)
Test socket A 1460
• Continuity (P/S-PE), • Continuity 4wire, • HV AC, **(up to 1.5kV),** • HV AC programmable **(up to 1.5kV),** • Riso (Riso, Riso-S), • Differential Leakage, • Ipe Leakage, • Sub-leakage, • Touch Leakage, • Leak's & Power, • Power.

Welding equipment

Welding equipment (Available single tests)		
Welding equipment (Test instrument)		
Test socket / Test socket - IEC	TP1 (test terminal)	
• Continuity (P/S-PE), • Continuity (MS_PE-IEC_PE), • Touch Leakage, • Power, • Polarity, Socket – IEC, • Active Polarity, Socket – IEC,		
4W-Continuity (test terminals)	HV (test terminals)	Current clamp
• Continuity 4wire		• Clamp current (optional clamps) *A 1422 shall be disabled/disconnected during measrement*
Current clamp ***Bluetotth*** (optional MD 9273) **supported from FW version xxxx**		
• Curren CLAMP • Harmonics I CLAMP • Harmonics U CLAMP • Inrush CLAMP • Power CLAMP Voltaeg CLAMP		
Welding equipment (Test instrument + A 1422) *The test instrument is used as a master instrument to control the adapter and to display the test results. Connections and measurements are made on the adapter.*		
• Continuity (P/S-PE), (Socket 3ph - Socket 3ph), • Riso (LN-PE, LN-W, LN (ClassII) – P/S), • Primary Leakage, • I leak (W-PE), • Polarity, (Socket 3ph - Socket 3ph), • Active Polarity (Wiring map), (Socket 3ph - Socket 3ph),		

• Touch Leakage • Power (P, Q, S, PF).
Welding equipment (Test instrument + A 1460 CE Adapter)
Test socket A 1460
• Continuity (P/S-PE), • Continuity 4wire, • Touch Leakage, • Power.

3.4.3. Flow commands

Flow commands are used to control the flow of measurements. Refer to chapter 3.5 Description of flow commands.

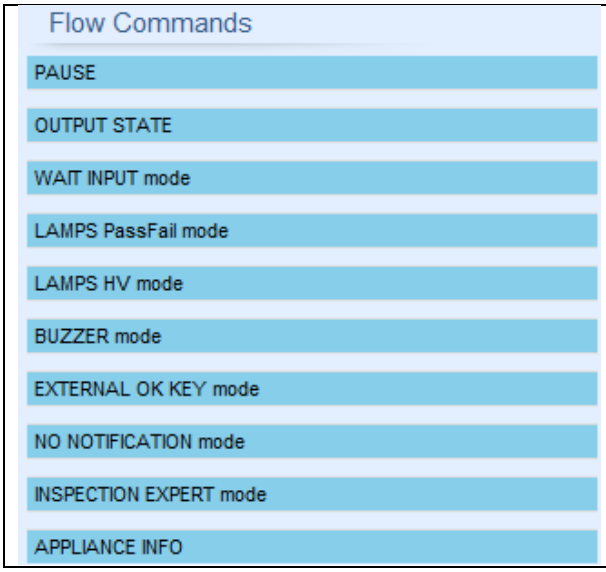
3.4.4. Number of measurement steps

Often the same measurement step has to be performed on multiple points on the device under test. It is possible to set how many times a Measurement step will be repeated. All carried out individual Single test results are stored in the Auto Sequence® result as if they were programmed as independent measuring steps.

3.5. Description of flow commands

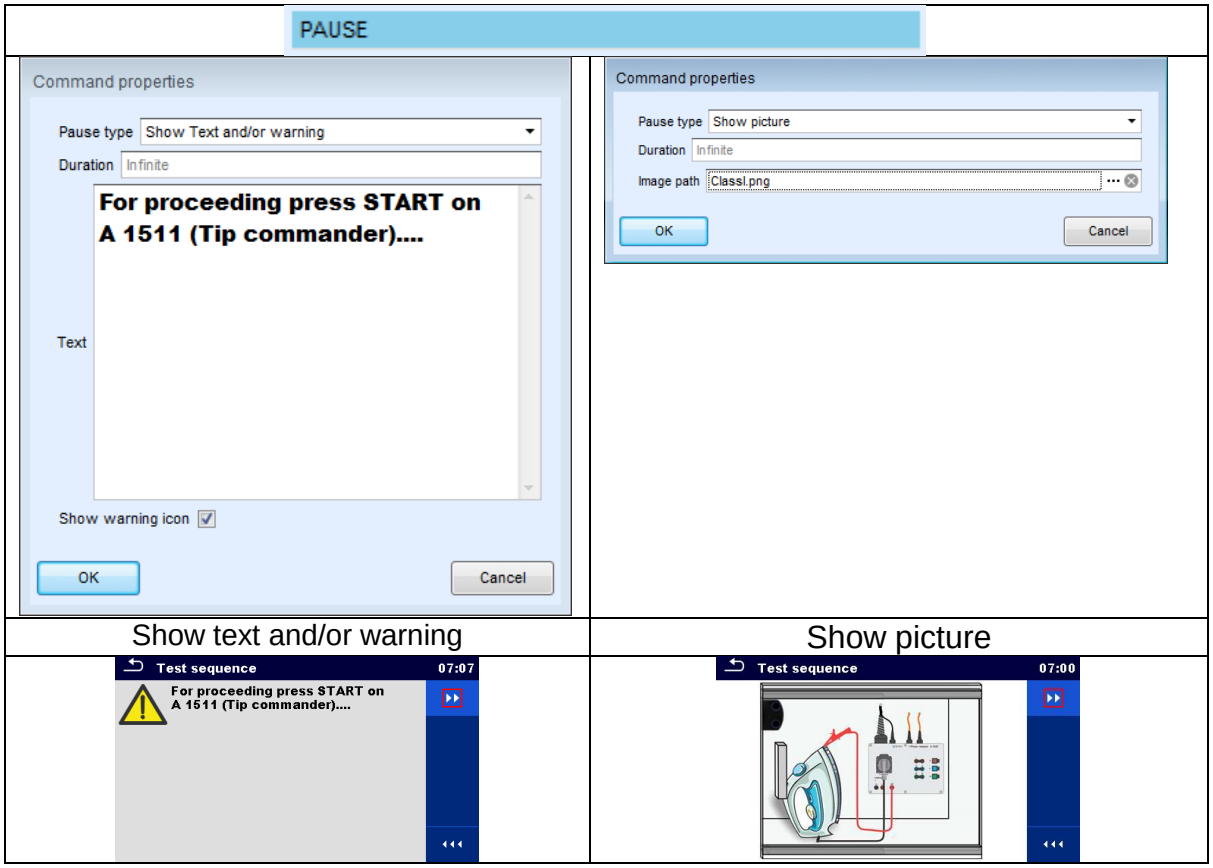
Depending on the specific work scope, different lists of flow commands are given. Flow commands are user selectable and can be added to test sequence using drag and drop.
Double click on inserted Flow Command opens menu window, where text or picture can be entered, external signalling and external commands can be activated and parameters can be set.

- Most Flow commands need to switch the state, from inactive to active, for operation.
- Flow command remains active until new (same) Flow command is inserted to Autosequence with the state set to inactive for operation.

	List of flow commands supported in, Work scope: **Machine, Switchgear and PAT testing (EU, UK, French, …)**

3.5.1. Pause

A Pause command with text message or picture can be inserted anywhere in the measuring steps. Warning icon can be set alone or added to text message. Arbitrary text message can be entered in prepared field Text of menu window.



Pause type	Show text and/or warning (check to show warning icon) Show picture (browse for image path)
Duration	Number in seconds, infinite (no entry)

3.5.2. Output state

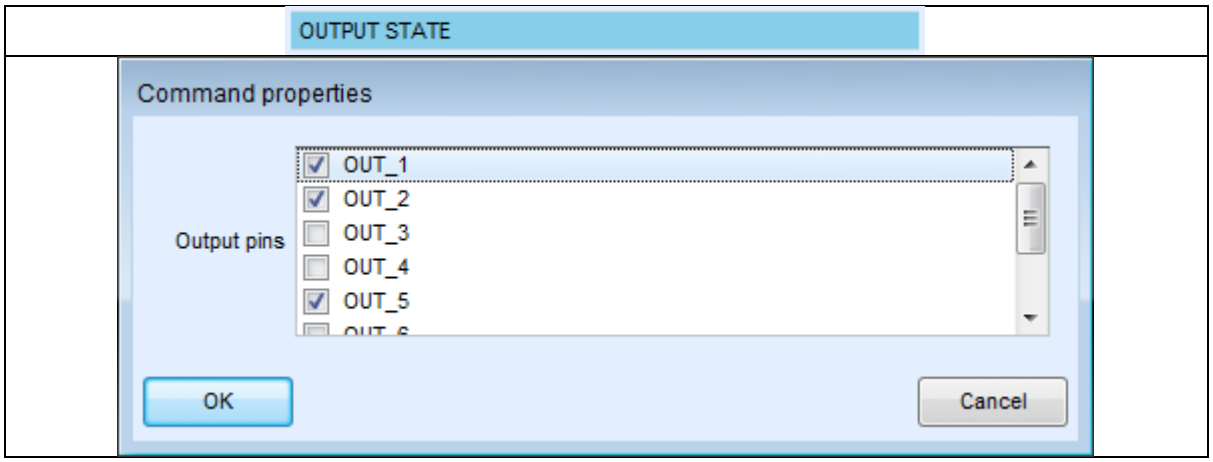
Sets outputs OUT_1, OUT_2, OUT_3, and OUT_4 on OUTPUT port.
Following settings of this command are ignored:

- OUT_1 and OUT_2 while Lamps HV mode is enabled.
- OUT_3 and OUT_4 while Lamps Pass / Fail mode is enabled.

All outputs are single normally opened relay contacts if not checked in Menu Output pins window.

Parameters:

☑ OUT_1	Set closed relay contact between OUTPUT pins 4 and 9
☑ OUT_2	Set closed relay contact between OUTPUT pins 3 and 8
☑ OUT_3	Set closed relay contact between OUTPUT pins 2 and 7
☑ OUT_4	Set closed relay contact between OUTPUT pins 1 and 6
☑ OUT_5 ☑ OUT_6 ☑ OUT_7 ☑ OUT_8	Applicable only when using CE Adapter A 1460



3.5.3. Wait input mode

Reads input condition on pins IN_2, IN_3, IN_4 and IN_5 on INPUTS port. Input must be high to proceed with the Auto test.

Parameters

State	On – enables Wait input mode; set active INPUTS from Input pins menu
	Off – disables Wait input mode
☑ IN_2	IN_2 reading condition on INPUTS pin 6 is active
☑ IN_3	IN_3 reading condition on INPUTS pin 7 is active
☑ IN_4	IN_4 reading condition on INPUTS pin 8 is active
☑ IN_5	IN_5 reading condition on INPUTS pin 4 is active

3.5.4. Lamps Pass / Fail mode

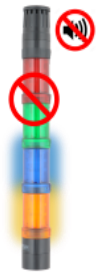
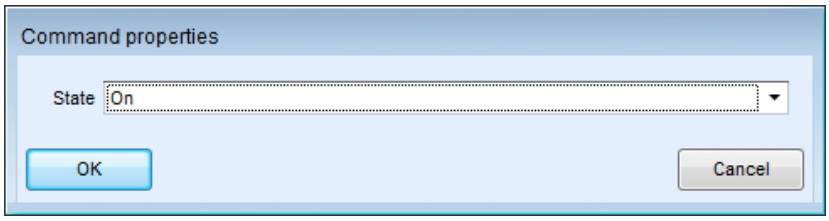
Drives external lamps through OUT_3 and OUT_4 outputs.
During measurement the lights reflect status icon in single test.
After measurement

- Blue lamp (OUT_3) lights ON when test has passed. Lamp is lit until next step is started.
- Yellow lamp (OUT_4) lights ON when test has failed. Lamp is lit until next step is started.
- Lights turn off at the beginning of next step.

While Lamps Pass / Fail mode command is enabled the settings of Drive output command for OUT_3 and OUT_4 is ignored.

Parameters

State	On – enables Lamps Pass / Fail mode Off – disables Lamps Pass / Fail mode

<table>
<tr><td colspan="2">LAMPS PassFail mode</td></tr>
<tr><td>  </td><td> 
</td></tr>
<tr><td>A 1497</td><td></td></tr>
</table>

3.5.5. Lamps HV mode

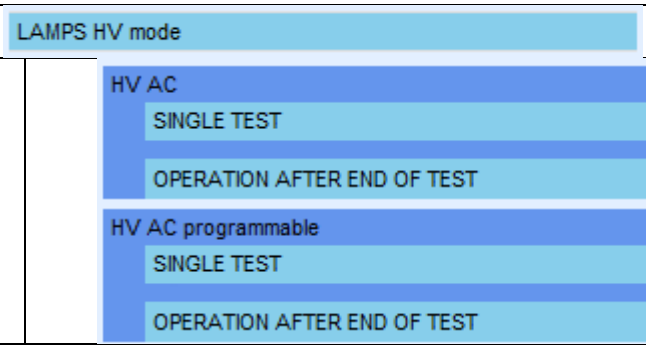
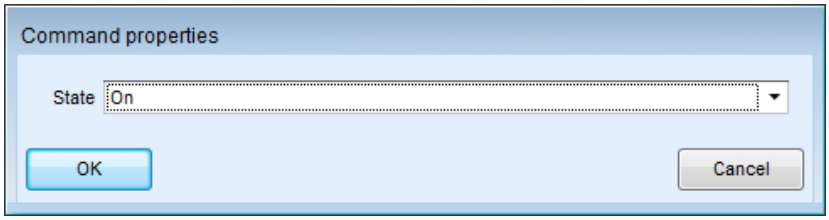
Drives external lamps through OUT_1 and OUT_2 outputs. Works only in HV & HV programmable functions.

- Red lamp (OUT_1) ON means that the instrument is ready for HV test. Red lamp turns on before first flow command in step that contains HV test. Red lamp turns off after end of the HV test.
- Green lamp (OUT_2) blinking means that high voltage will be applied to WITHSTANDING (HV(~+) and HV(~-)) test terminals as soon as all input conditions will be fulfilled.
- Green lamp (OUT_2) ON means that dangerous voltage is present at WITHSTANDING (HV(~+) and HV(~-)) test terminals. Green lamp turns on before the measurement and turns off after the measurement.

While Lamps HV mode command is enabled the settings of Drive output command for OUT_1 and OUT_2 is ignored.

Parameters

State	On – enables Lamps HV mode Off – disables Lamps HV mode

	
Works only in HV & HV programmable functions.	
	
A 1496	

3.5.6. Buzzer mode

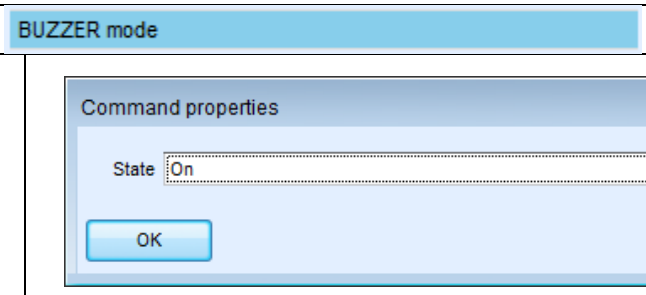
Passed or failed measurement is indicated with beeps.

- Pass – double beep after the test
- Fail – long beep after the test

Beep happens right after single test measurement.

Parameters

State	On – enables Buzzer mode Off – disables Buzzer mode

	
A 1496	

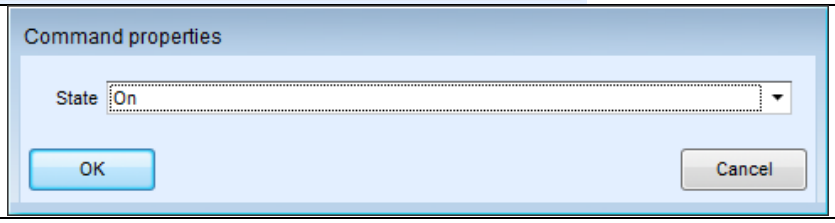
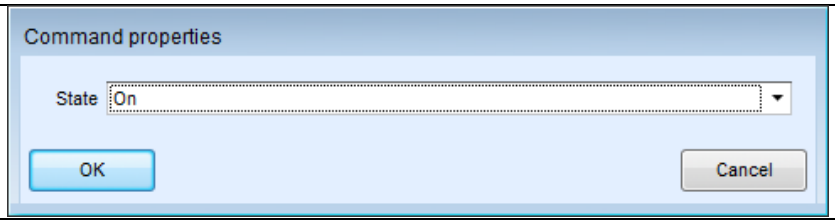
3.5.7. External TEST / OK key mode

Instrument enables external TEST / OK key (OK / ENTER / TEST / HV TEST) by activating INPUT pin 5 reading condition. Functionality of the EXTERNAL OK KEY mode is the same as of the OK / ENTER / TEST / HV TEST key.

Parameters

State	On – enables External TEST / OK key mode (INPUT pin 5 is active)

	Off – disables External TEST / OK key mode

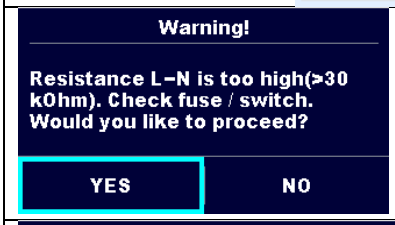
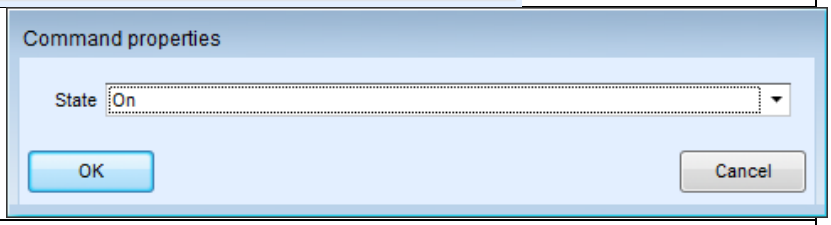
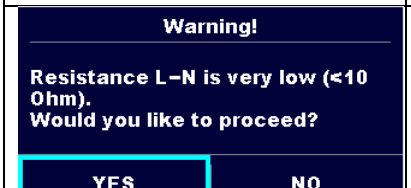
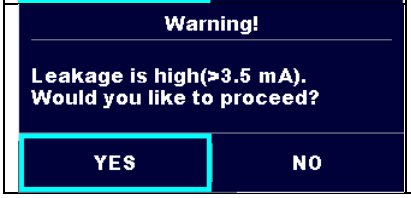
	EXTERNAL OK KEY mode
	
A 1511	
	
A 1495	

3.5.8. No notifications mode

Instrument skips pre-test warnings (for more information see User Manual of specific instrument, chapter “Symbols and messages”).

Parameters

State	On – enables No notifications mode Off – disables No notifications mode

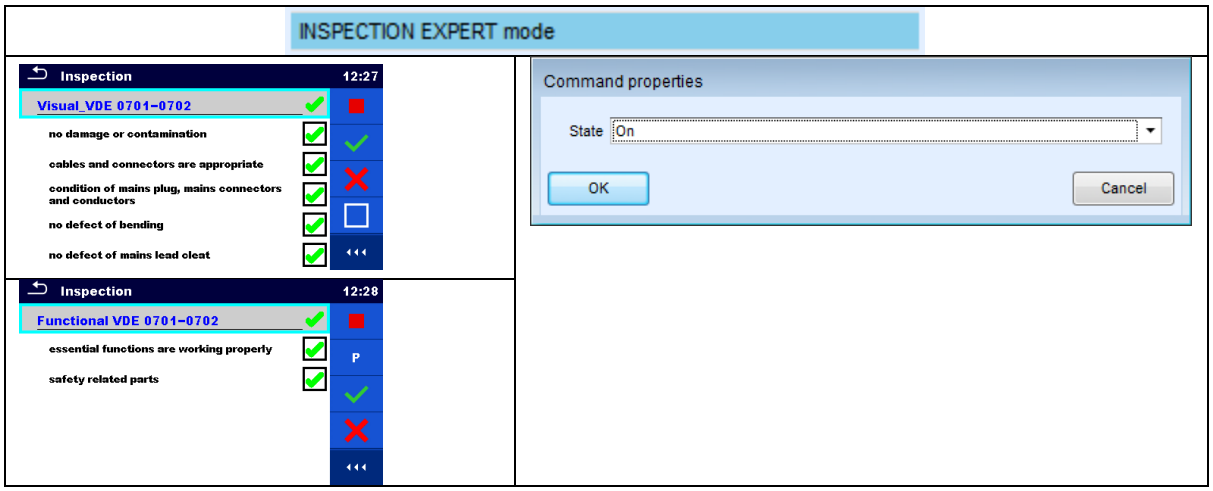
	NO NOTIFICATION mode
	
 	Few examples of warnings that will not be displayed on the instrument when using the **NO NOTIFICATION mode** flow command!!!

3.5.1. Inspection Expert mode

If Inspection Expert mode flow command is set, the Visual inspection screen and Functional inspection screen within Auto Sequence® are displayed for 1 second and an overall PASS is automatically applied at the end of test. In between, the automatic procedure can be stopped and statuses can be applied manually.
Inspection Expert mode is disabled by default.

Parameters

State	On – enables automatic settings of tickers in Visual and Functional tests. Off – disables automatic settings of tickers in Visual and Functional tests.



3.5.2. Appliance info

Instrument enables to automatically add the appliance name to the Auto Sequence®.

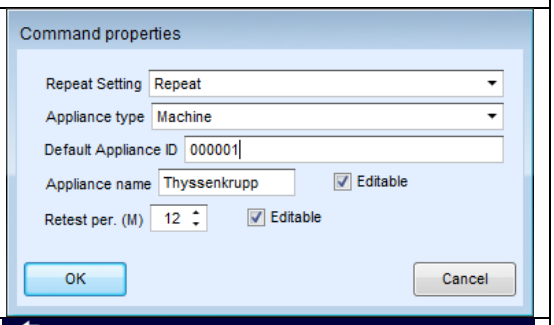
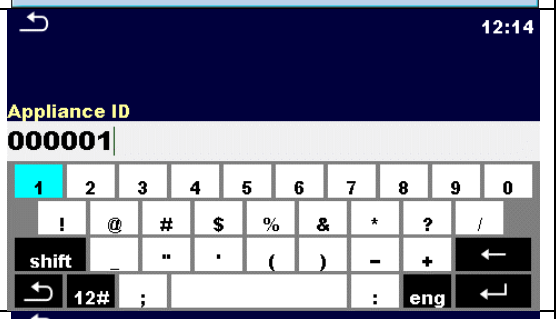
Parameters

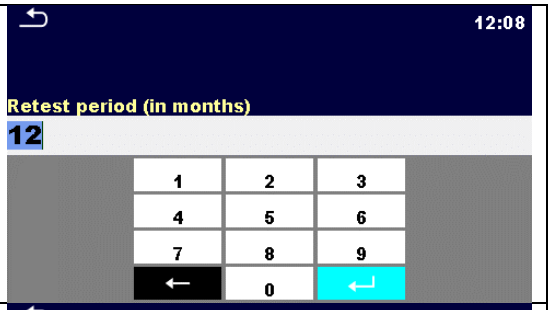
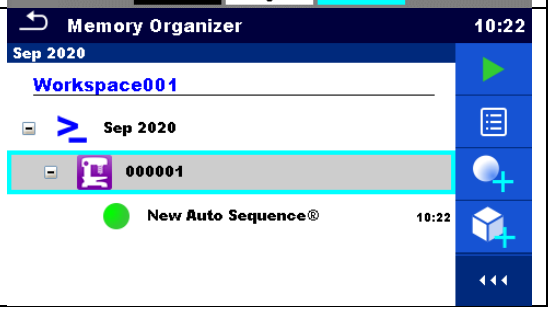
Repeat Setting	Repeat:	The same Appliance ID will be offered each time if the same Auto Sequence® is carried out successively in a loop.
	Increment:	A four digit number will be added to the Appliance ID and incremented each time if the same Auto Sequence® is carried out successively in a loop.
Appliance type	Selects the type of the appliance (Appliance, Appliance_FD, Welding equip., Welding equip_FD., Machine, Switchgear, EVSE)	
Default Appliance ID	Enter default Appliance ID	
Appliance name	Enter Appliance name. Options: ☑ Editable – allows Appliance name to be modified while running Auto Sequence®. Menu with a list of Appliance	

	names and possibility to enter custom Appliance name is offered within the test. ☐ Not editable – Default Appliance name is used. Appliance name cannot be modified while running Auto Sequence®.
Retest period	Retest period in months. Options: ☑ Editable – allows Retest period to be modified while running Auto Sequence®. Numeric keypad for entering custom Retest period is offered within the test. ☐ Not editable – Default Retest period is used. Retest period cannot be modified while running Auto Sequence®.

Note

- This flow command is active only if Auto Sequence® is started from the Auto Sequences® Main menu.

APPLIANCE INFO		
Appliance info flow command enables following options on the instrument.		
Entering Default appliance ID		
Entering appliance name		

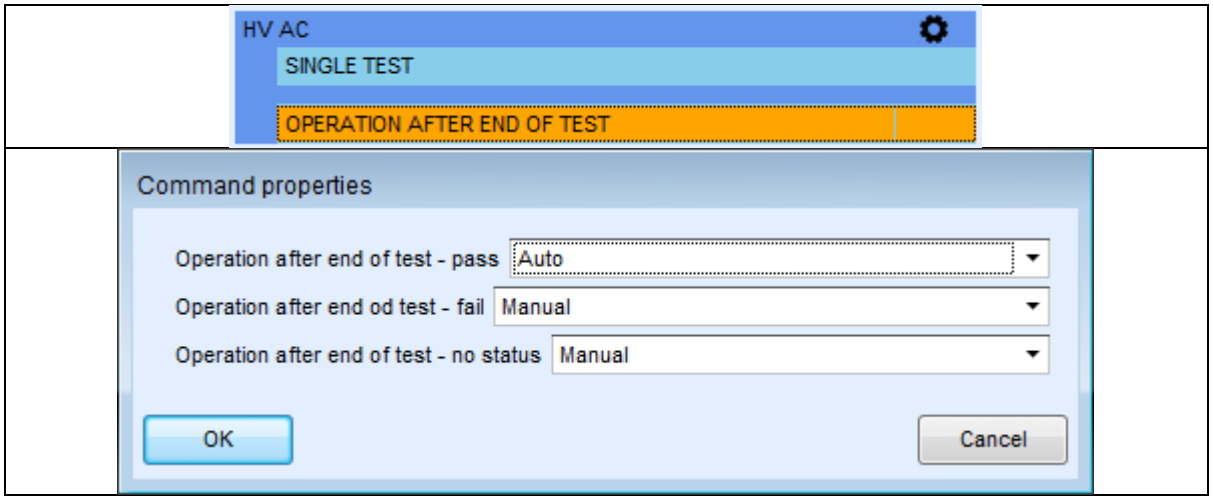
Entering Retest period (in months)		
Automatic generation of Selected Appliance type in the structure		

3.5.3. Operation after end of test

This flow command controls the proceeding of the Auto Sequence® in regard to the measurement results.

Parameters

Operation after end of test – pass – fail – no status	The operation can be individually set for the case the measurement passed, failed or ended without a status.	
	Manual:	The test sequence stops and waits for appropriate command (TEST key, external command...) to proceed.
	Auto:	The test sequence automatically proceeds.



3.5.4. Result screen

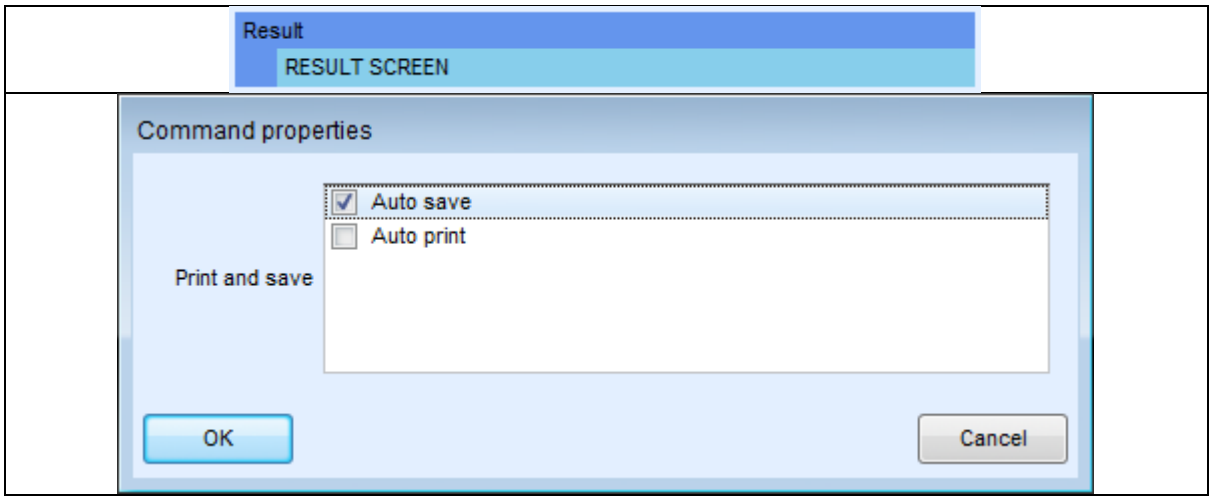
This flow command controls the proceeding after the Auto Sequence® has ended.

Parameters

Auto Save	Auto Sequence® results are stored in the momentary workspace. A new Node with the month and year will be created. Under the Node Auto Sequence® results or (if Appliance info flow command is set) a new appliance and Auto Sequence® results will be stored. Up to 100 Auto Sequence® results or appliances can be automatically stored under the same node. If more results / appliances are available, they are split to multiple nodes. Local Save Flow setting is disabled by default.
Auto Print	Auto Sequence® results are automatically printed.

Notes

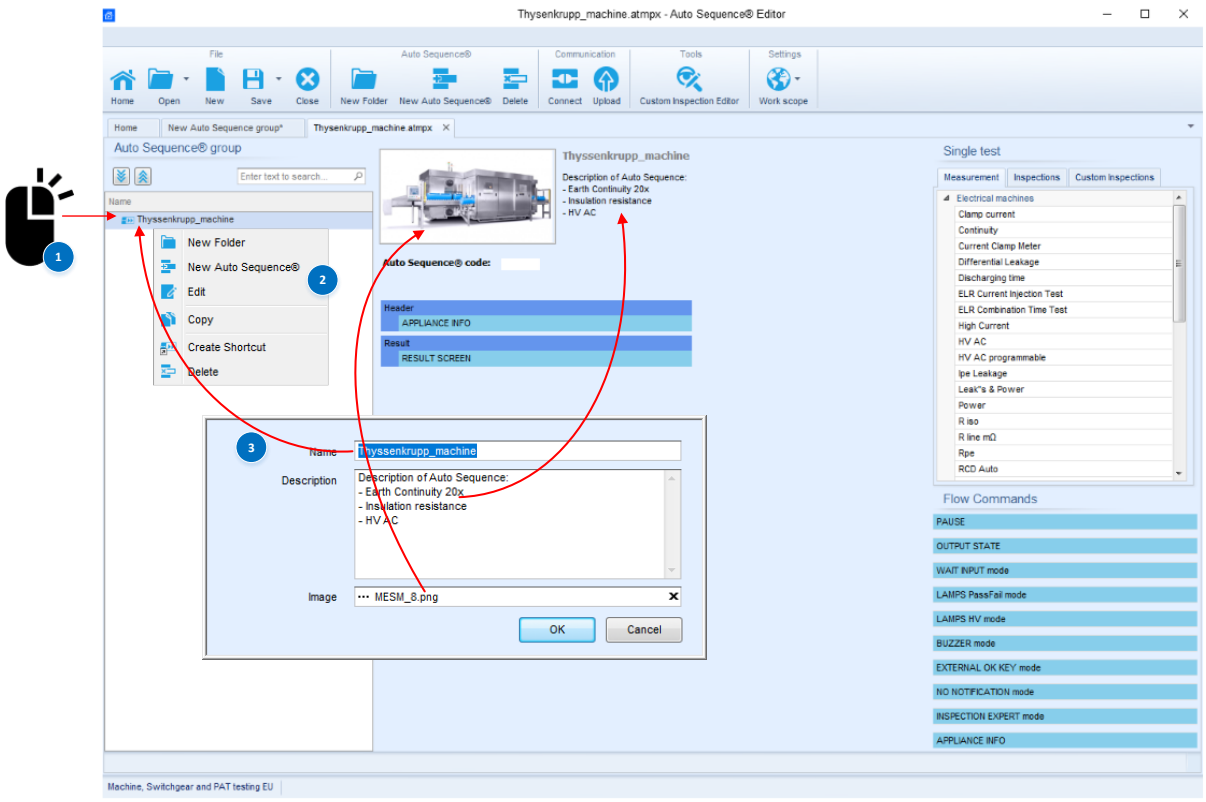
- This flow command is active only if Auto Sequence® is started from the Auto Sequences® Main menu (not from Memory organizer).



4. Manage sequence step by step

4.1. Editing test sequence parameters

Each test sequence can be custom named, equipped with description and image.

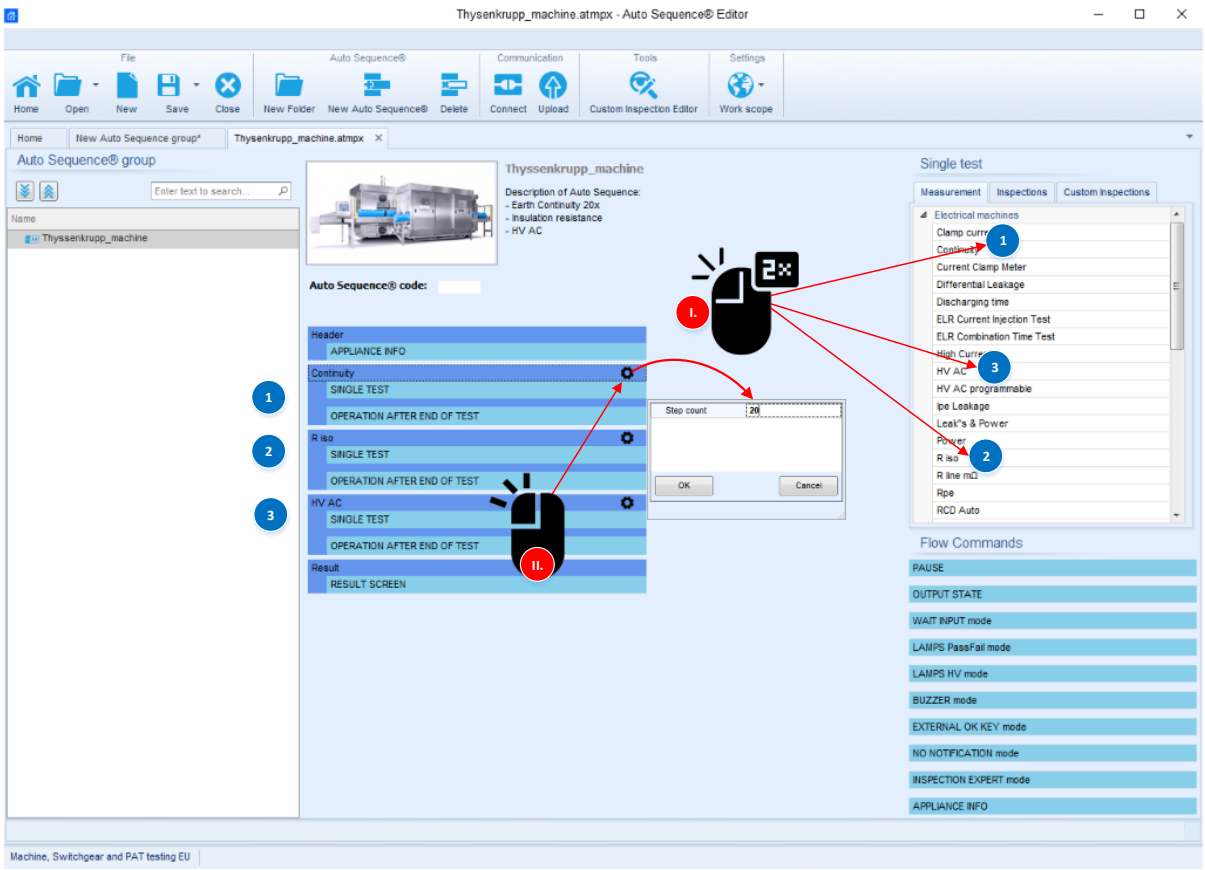


4.2. Adding and editing measurements

From the list of available single tests;

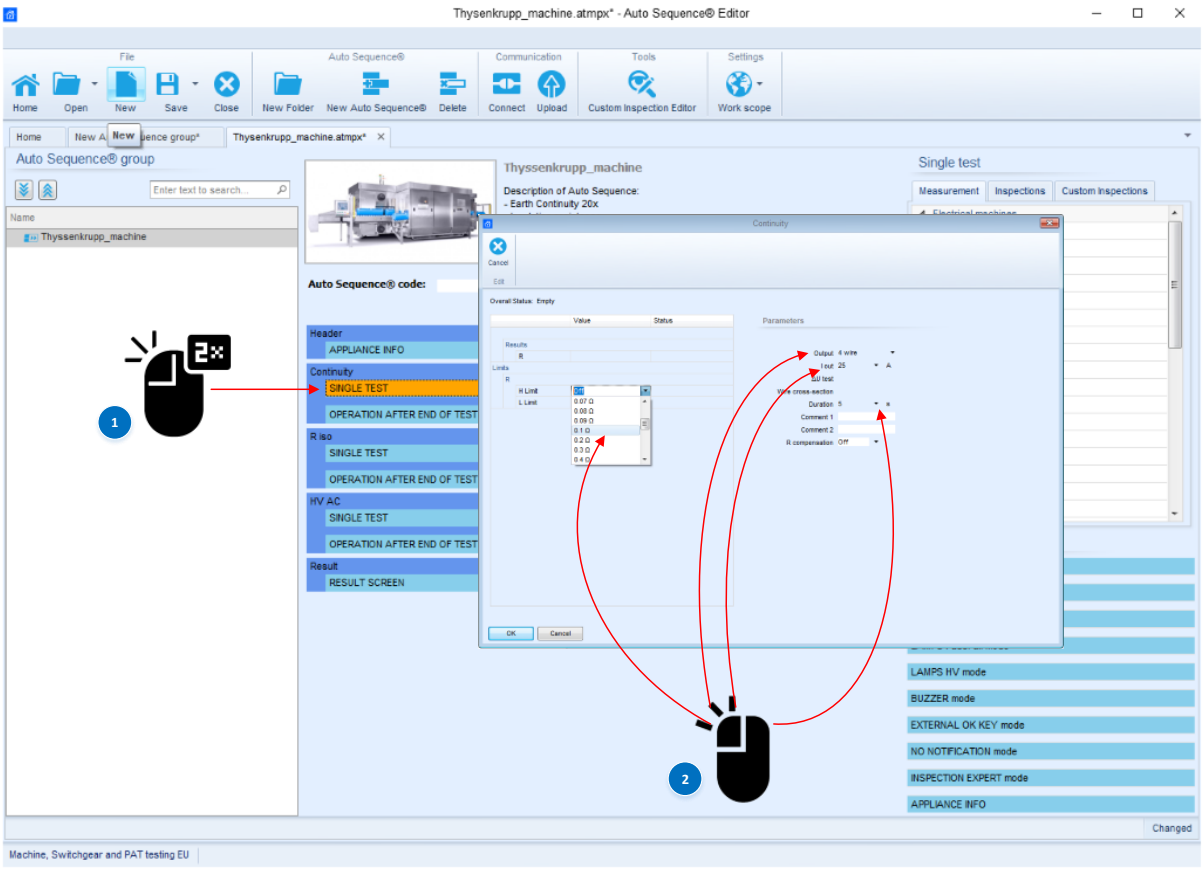
- measurements,
- inspections or,
- custom inspections can be added to the sequence structure.

Number of individual measurements is not limited, measurements order is not specified, these enables creation of arbitrary test sequence. Step count can be defined for each individual single test, limit of steps is set to **999 steps**.

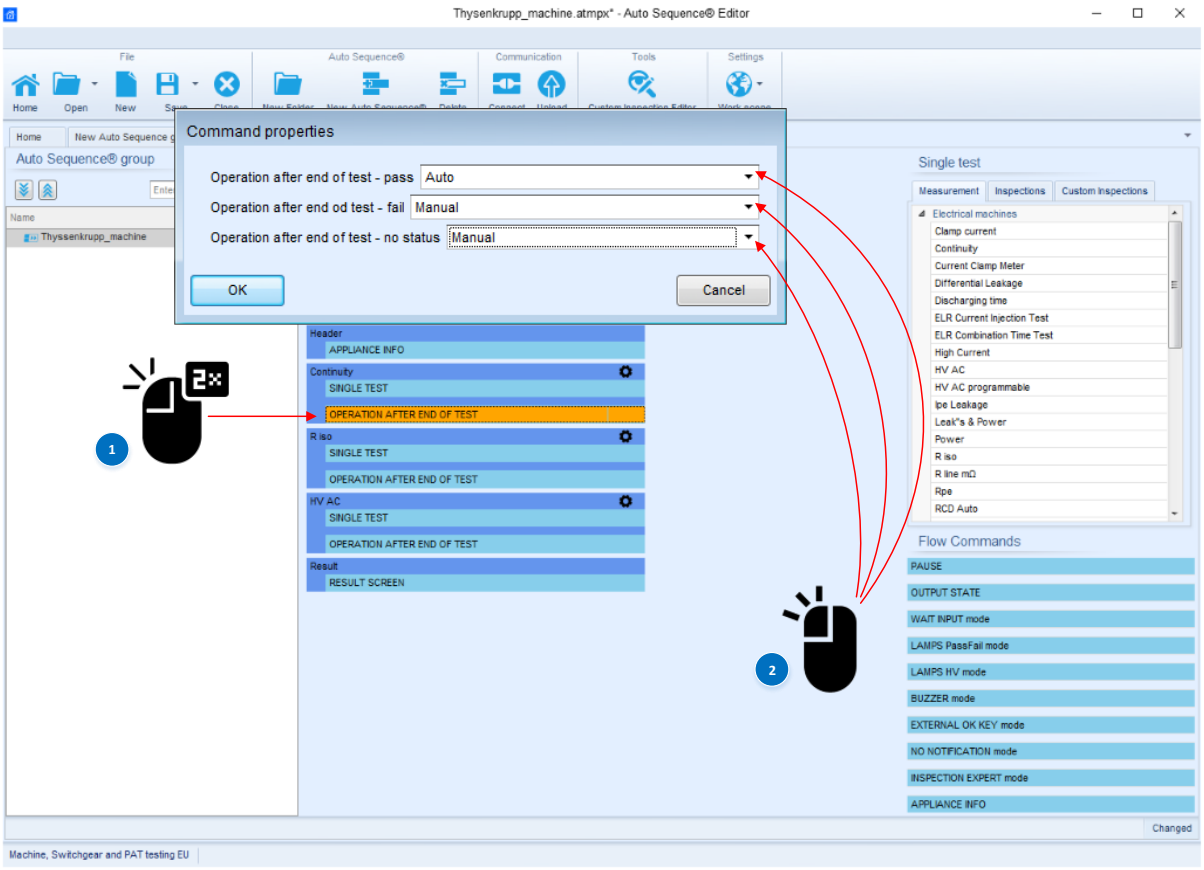


Each individual single test has several editable parameters, depending on the specifics of the test:

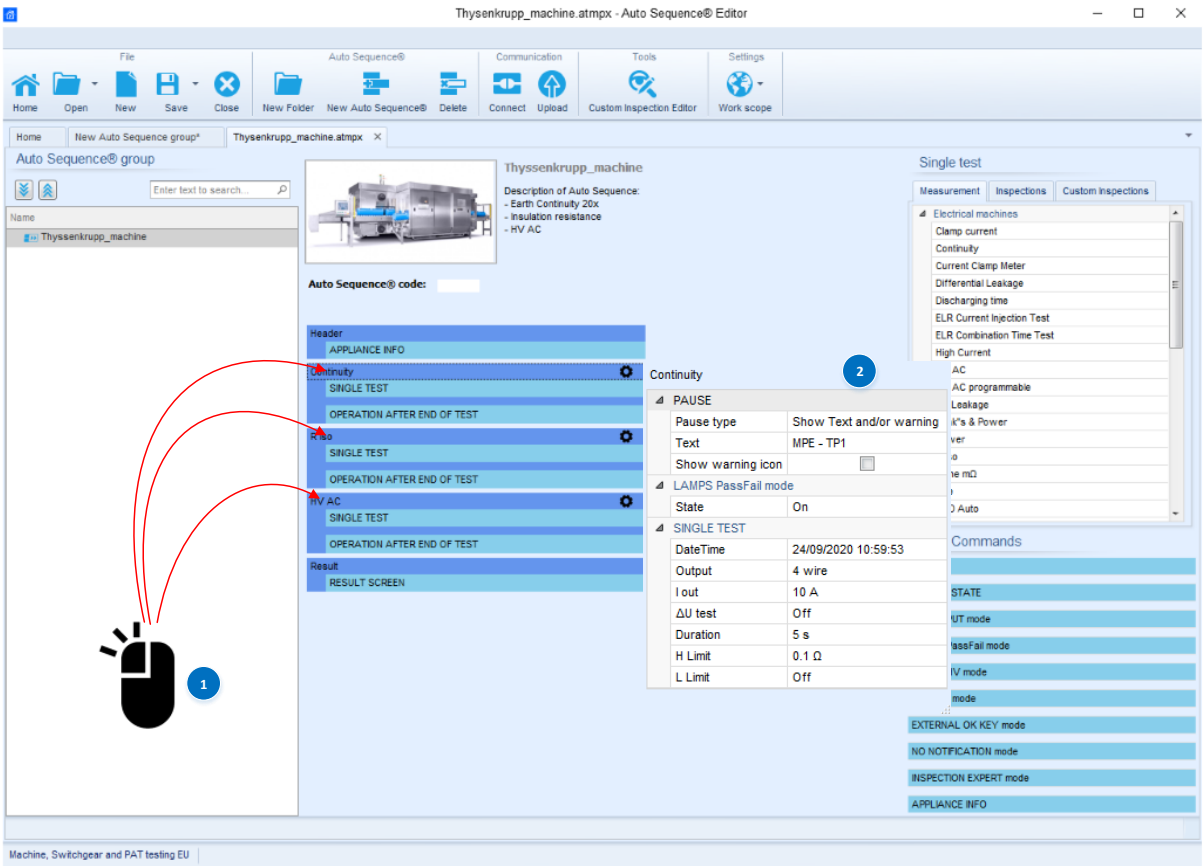
- Outputs,
- Types of measurement,
- Duration,
- Limits (High & Low),
- Comments, etc., can be set.



In addition to editable test parameters each individual test has a built in flow command, used to control the flow of the measurement, after end of test.
Operation after end of test can be set for different test status: Pass, Fail, or No status.



A quick overview of set parameters is possible by clicking on the header of a specific test.



5. Examples of Auto Sequences

The Auto Sequence® consists of a sequence of individual tests. The progress of individual tests can be controlled using flow commands. The MultiServicerXD instrument enables the execution of individual tests via various test terminals. Performing test sequences via different test terminals is often not the most appropriate solution from an application point of view. Various active adapters are available to perform integrated test sequences via a common test terminal. One such is the CE Adapter A 1460.

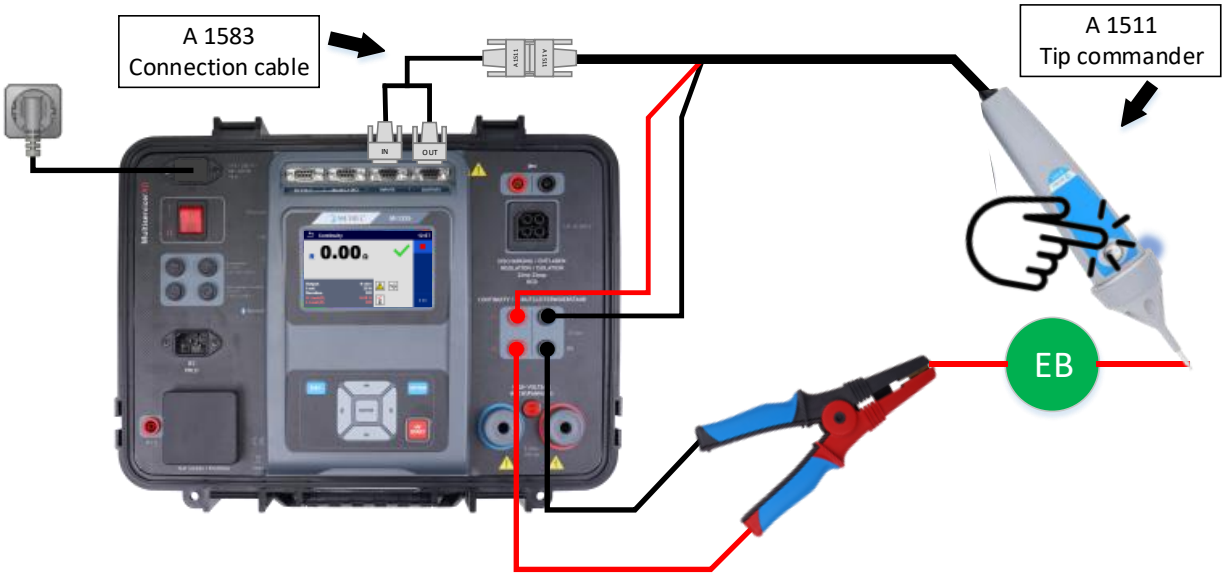
The following sections will show possible execution of test sequences with and without the use of active adapters. It will also be shown how optional accessories controlled by the flow commands can be connected and used.

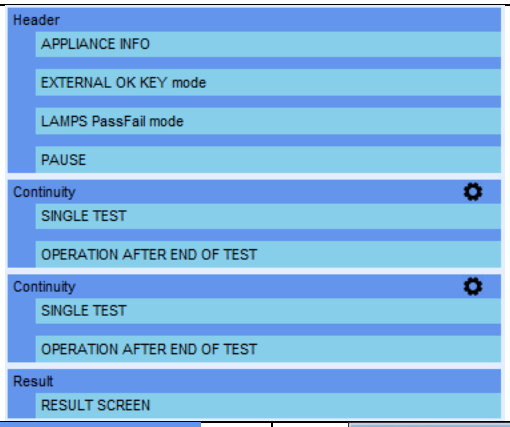
5.1. How to enable remote start with optional A 1511

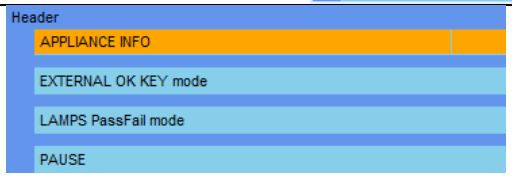
The instrument supports many different optional accessories, one of the more useful ones is certainly the A 1511 Tip commander. In following case Tip comander will be used for remote controlled execution of 4-wire Continuity test and indication of PASS / FAIL status of the measurement with commander's indication LED's.

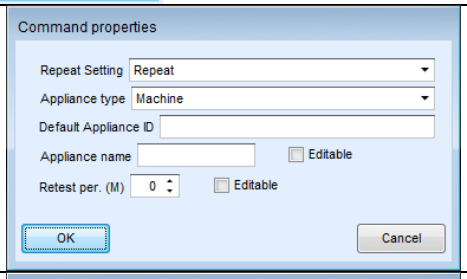
In the following steps it will be shown:

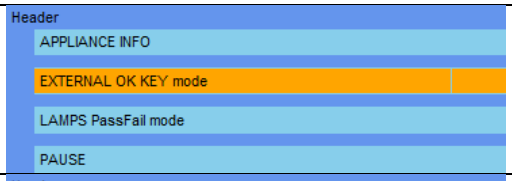
- How to enable remote control with A 1511, using flow commands:
  - >EXTERNAL OK KEY mode<
  - >LAMPS PassFail mode<
- Use of flow command >PAUSE<
- Use of flow command >APPLIANCE INFO<
- Execution of 4-wire Earth continuity (EB)
- How to enable Auto save

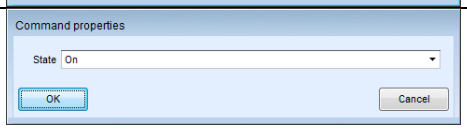


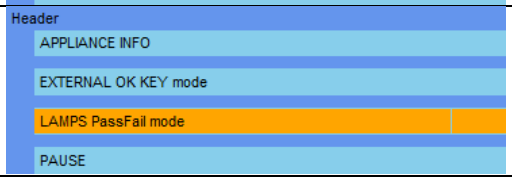

Header
APPLIANCE INFO
EXTERNAL OK KEY mode
LAMPS PassFail mode
PAUSE
Continuity
SINGLE TEST
OPERATION AFTER END OF TEST
Continuity
SINGLE TEST
OPERATION AFTER END OF TEST
Result
RESULT SCREEN

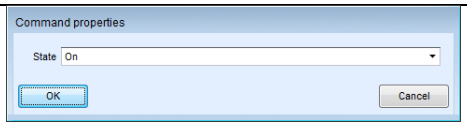

Header
APPLIANCE INFO
EXTERNAL OK KEY mode
LAMPS PassFail mode
PAUSE

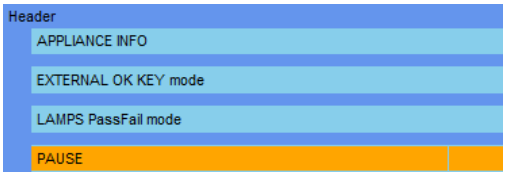

Command properties
Repeat Setting
Repeat
Appliance type
Machine
Default Appliance ID
Appliance name
Editable
Retest per. (M)
0
Editable
OK
Cancel

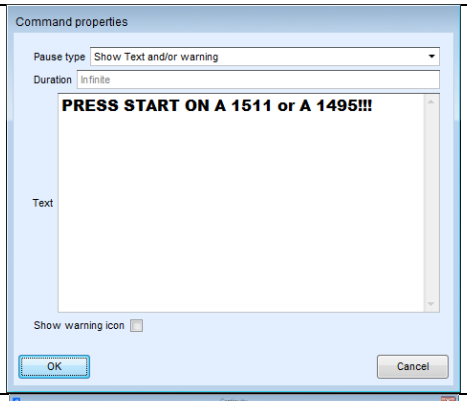

Header
APPLIANCE INFO
EXTERNAL OK KEY mode
LAMPS PassFail mode
PAUSE

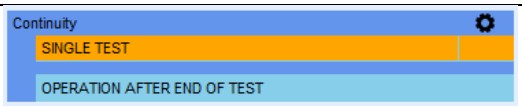

Command properties
State
On
OK
Cancel

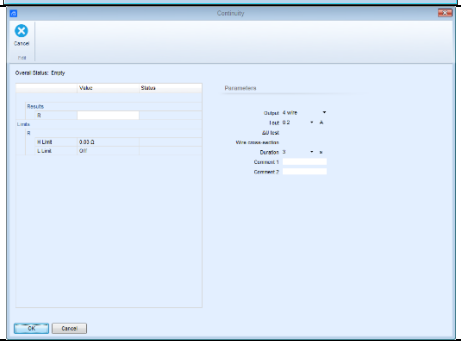

Header
APPLIANCE INFO
EXTERNAL OK KEY mode
LAMPS PassFail mode
PAUSE

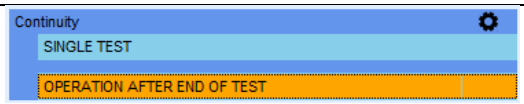
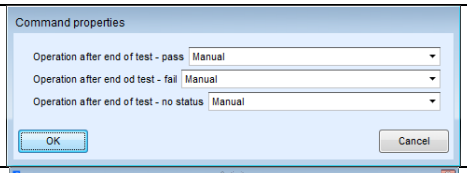
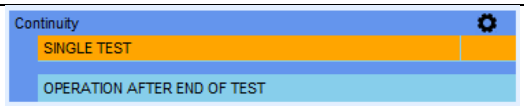
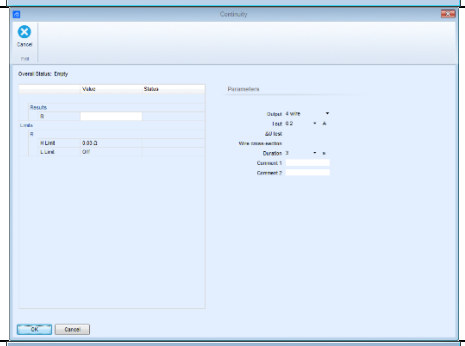
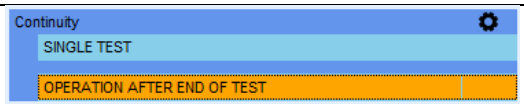
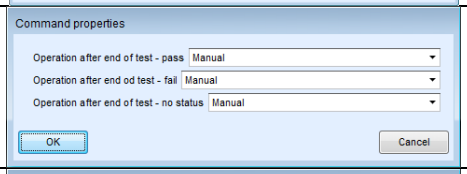
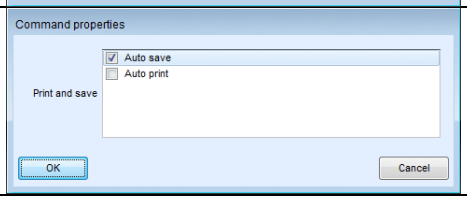

Command properties
State
On
OK
Cancel

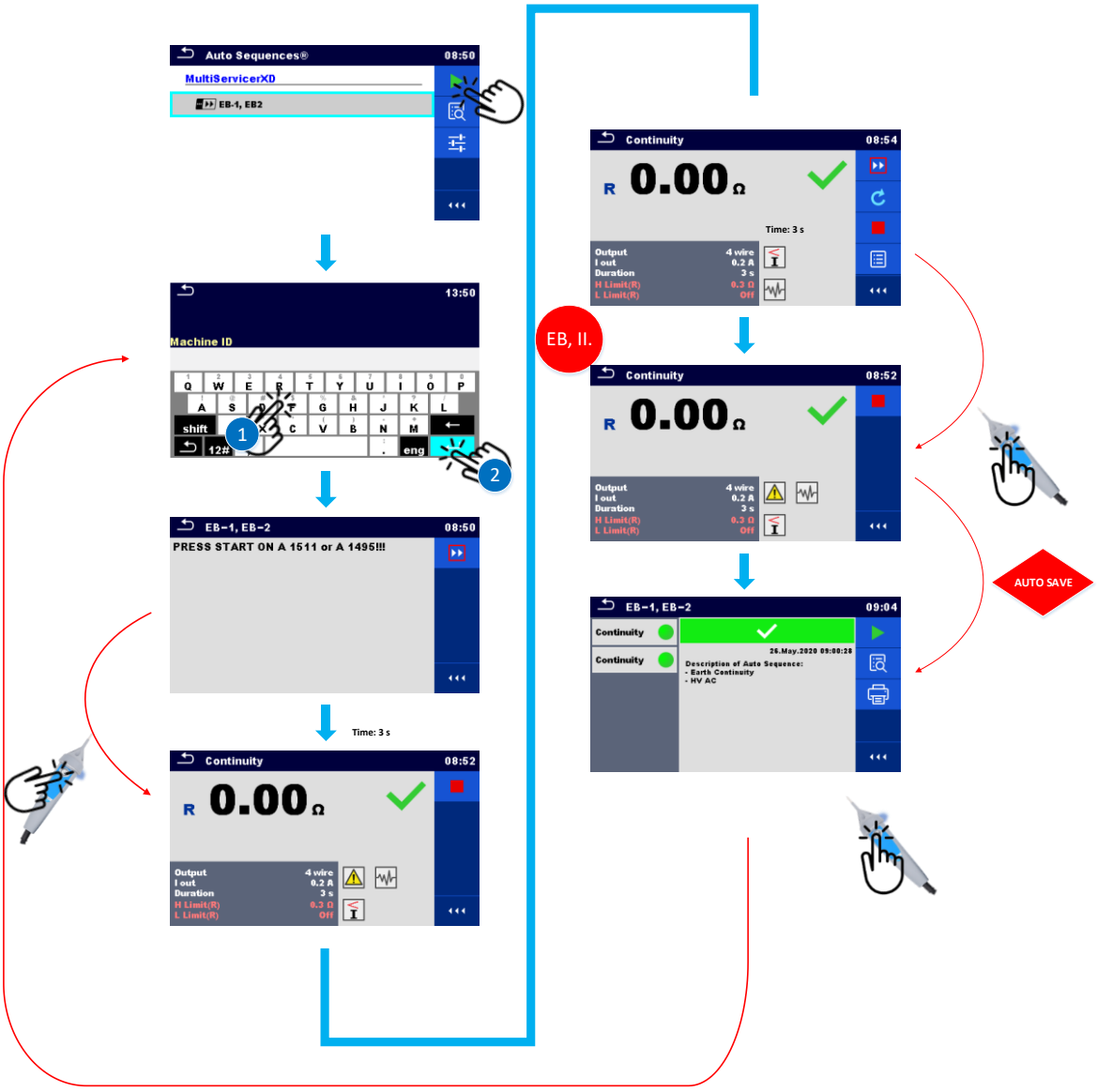

Header
APPLIANCE INFO
EXTERNAL OK KEY mode
LAMPS PassFail mode
PAUSE


Command properties
Pause type
Show Text and/or warning
Duration
Infinite
PRESS START ON A 1511 or A 1495!!!
Text
Show warning icon
OK
Cancel

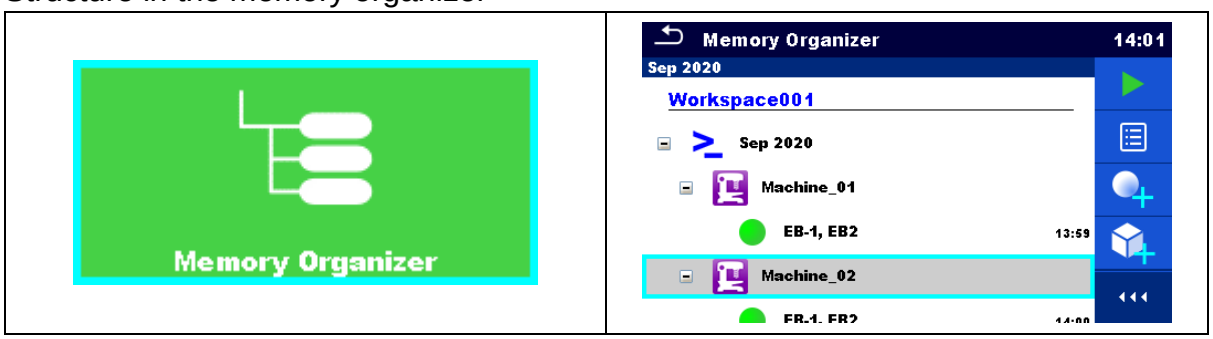

Continuity
SINGLE TEST
OPERATION AFTER END OF TEST



 Continuity SINGLE TEST OPERATION AFTER END OF TEST	 Command properties Operation after end of test - pass Manual Operation after end od test - fail Manual Operation after end of test - no status Manual OK Cancel
 Continuity SINGLE TEST OPERATION AFTER END OF TEST	
 Continuity SINGLE TEST OPERATION AFTER END OF TEST	 Command properties Operation after end of test - pass Manual Operation after end od test - fail Manual Operation after end of test - no status Manual OK Cancel
Result RESULT SCREEN	 Command properties Auto save Auto print Print and save OK Cancel



Structure in the memory organizer

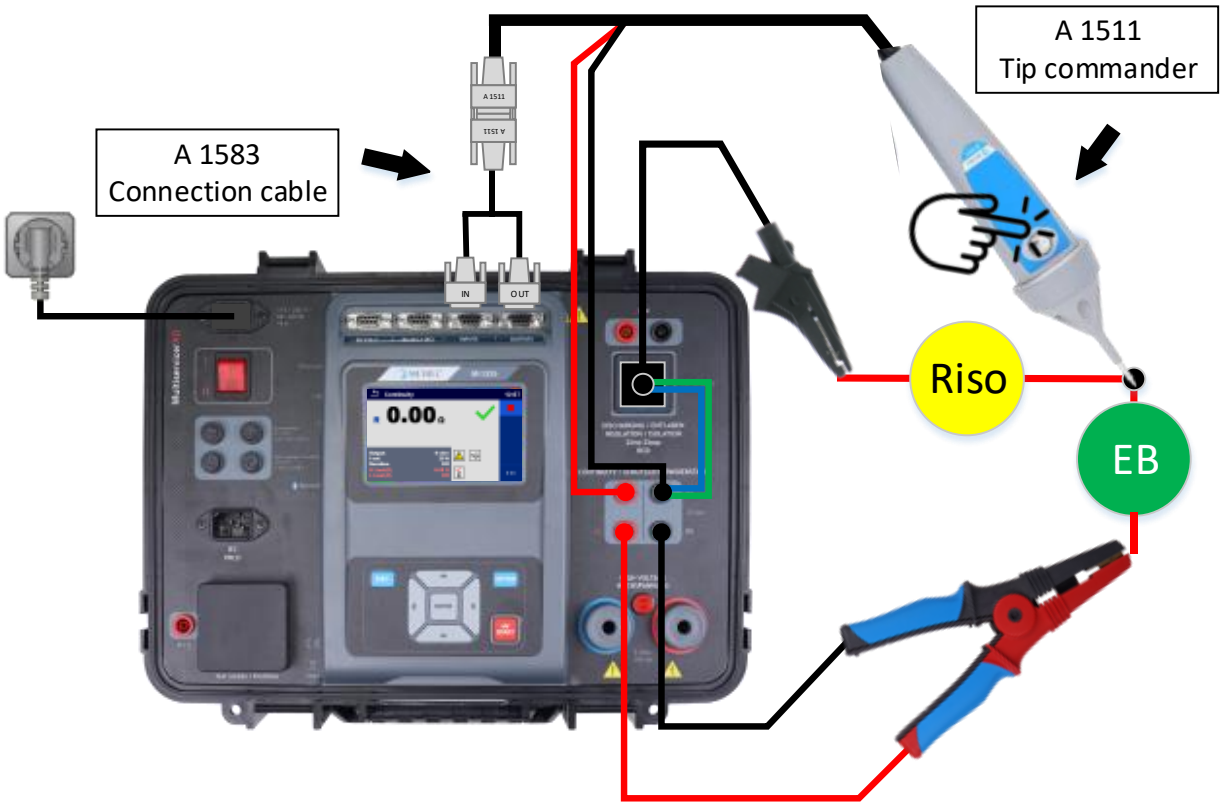


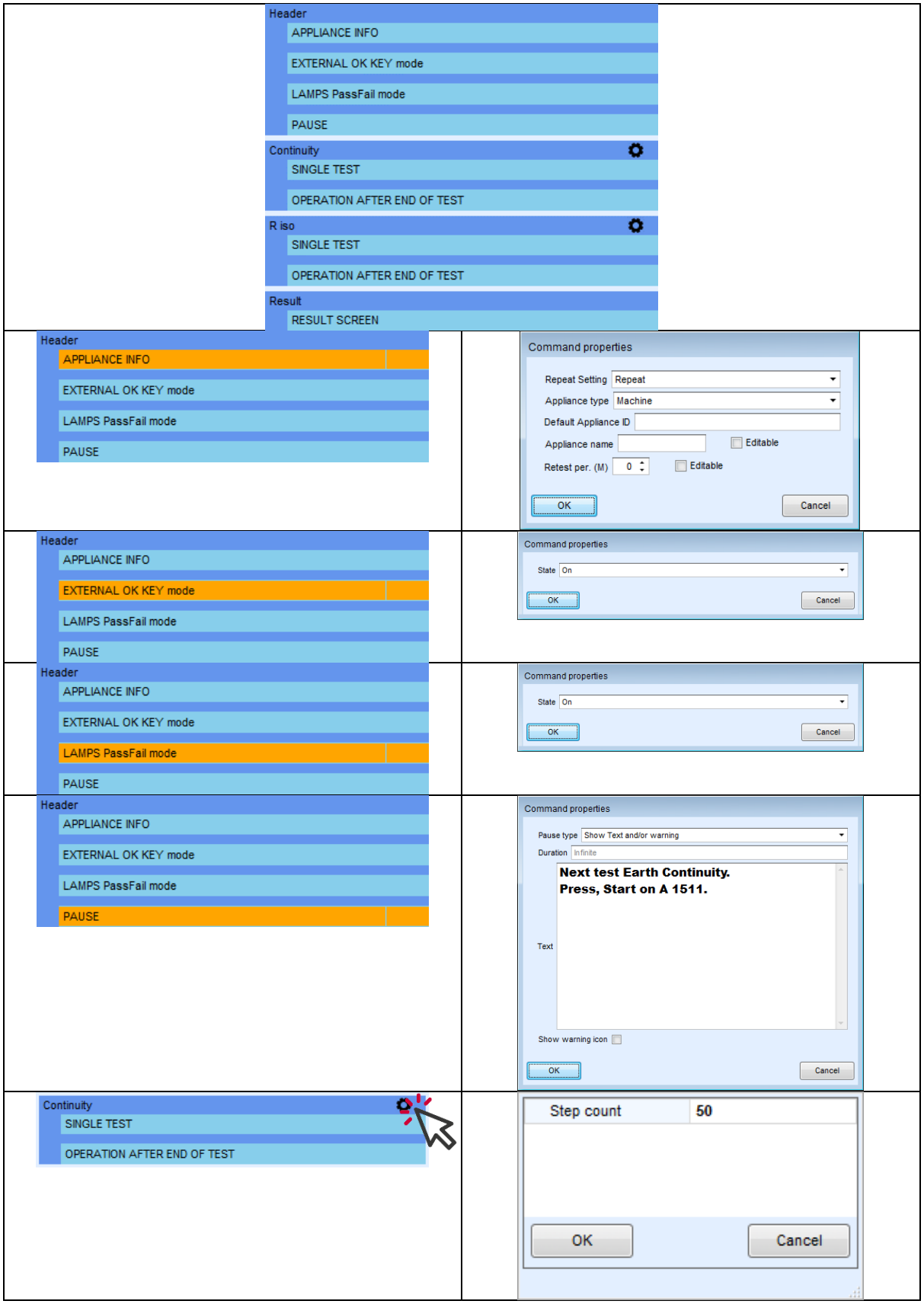
5.2. How to enable How to execute Earth continuity and Insulation resistance test using optional A 1511

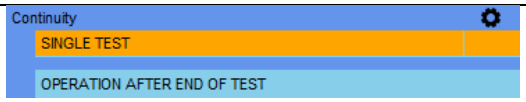
The following example will show how to prepare a test sequence that will allow a specific test step to be repeated within a loop. If it is not necessary to set specific limits for each subsequent test step, this setting saves time when configuring the test sequence. In addition to setting the test sequence itself, it will also be shown how to set the connection of test accessories for the execution of the Earth continuity test and Insulation resistance using A 1511(an external Tip commander).

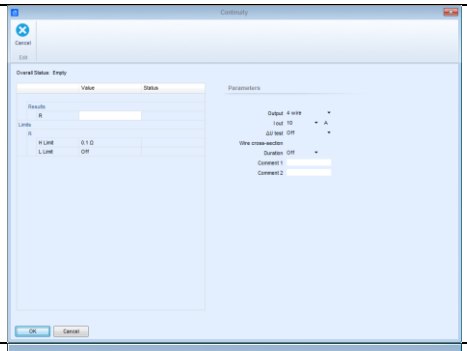
In the following steps it will be shown:

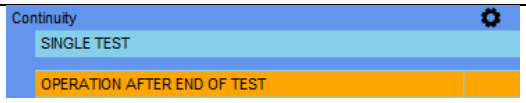
- How to connect test leads & A 1511 for remote control of (EB & Riso functions)
- Execution of 4-W Earth continuity test (EB), >sequence of 50-test steps<
- Execution of Insulation resistance test (Riso), >sequence of 50-test steps<
- How to enable A 1511, using flow commands:
  - >EXTERNAL OK KEY mode<
  - >LAMPS PassFail mode<
- Use of flow command >PAUSE<
- Use of flow command >APPLIANCE INFO<
- How to set test Loop within single test
- How to enable Auto save

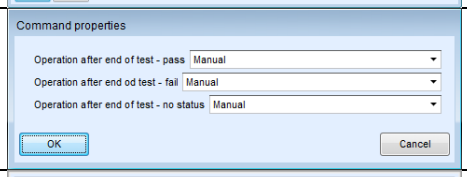


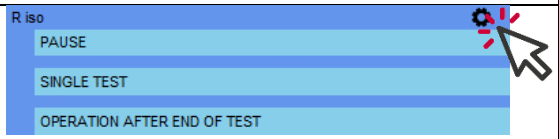

Header
APPLIANCE INFO
EXTERNAL OK KEY mode
LAMPS PassFail mode
PAUSE
Continuity
SINGLE TEST
OPERATION AFTER END OF TEST
R iso
SINGLE TEST
OPERATION AFTER END OF TEST
Result
RESULT SCREEN
Command properties
Repeat Setting
Repeat
Appliance type
Machine
Default Appliance ID
Appliance name
Editable
Retest per. (M)
0
Editable
OK
Cancel
State
On
Pause type
Show Text and/or warning
Duration
Infinite
Next test Earth Continuity.
Press, Start on A 1511.
Text
Show warning icon
Step count
50

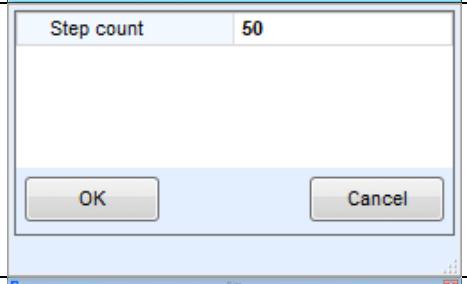

Continuity
SINGLE TEST
OPERATION AFTER END OF TEST

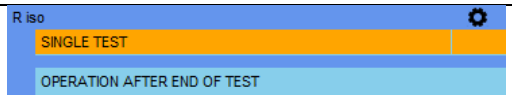


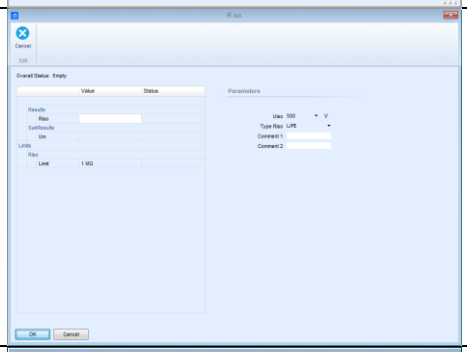

Continuity
SINGLE TEST
OPERATION AFTER END OF TEST

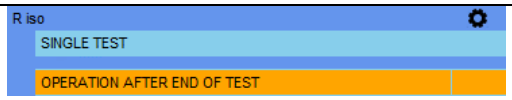

Command properties
Operation after end of test - pass
Manual
Operation after end od test - fail
Manual
Operation after end of test - no status
Manual
OK
Cancel

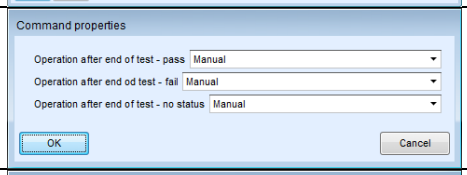

R iso
PAUSE
SINGLE TEST
OPERATION AFTER END OF TEST


Step count
50
OK
Cancel

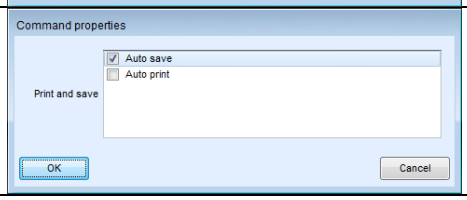

R iso
SINGLE TEST
OPERATION AFTER END OF TEST

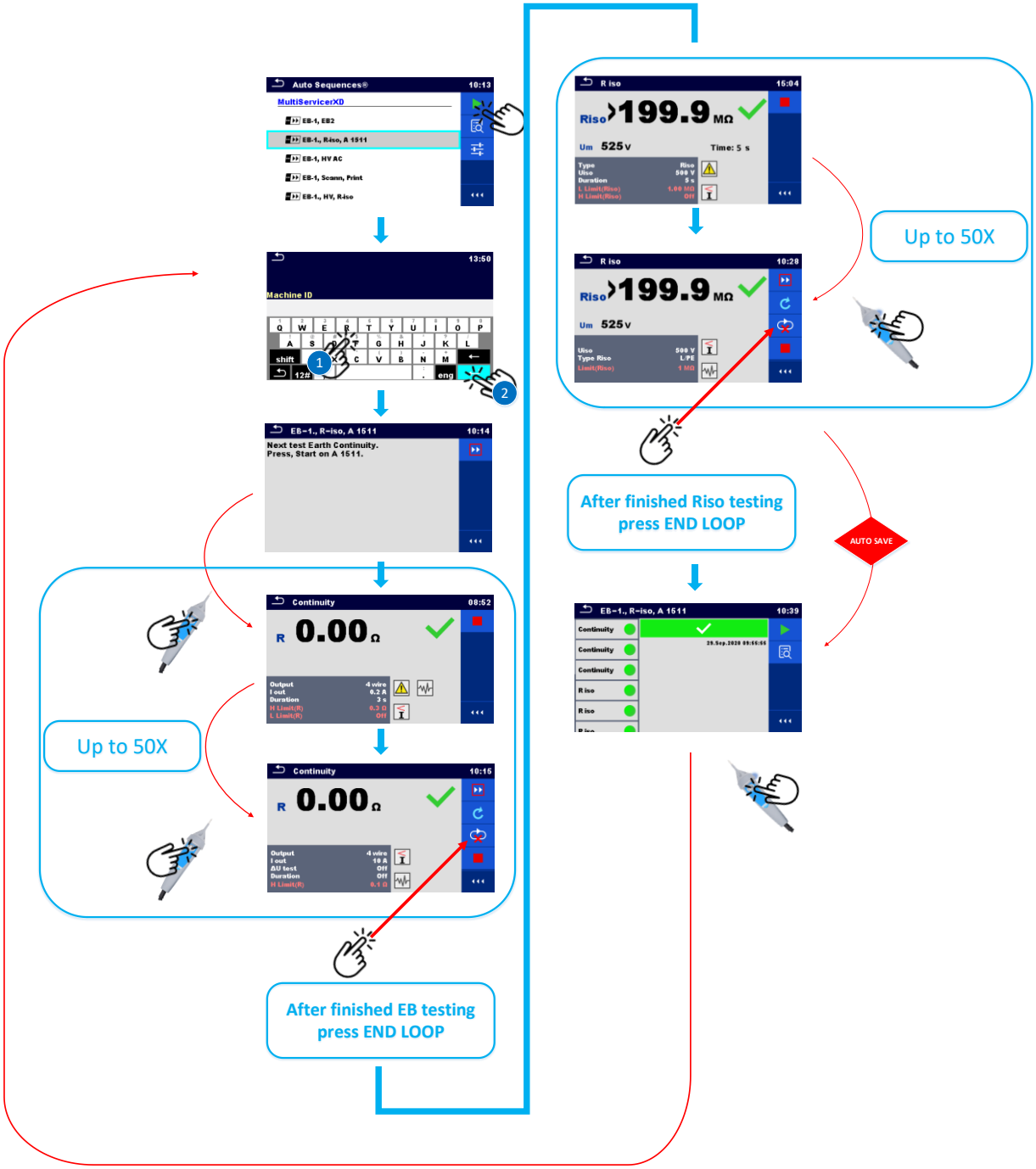



R iso
SINGLE TEST
OPERATION AFTER END OF TEST


Command properties
Operation after end of test - pass
Manual
Operation after end od test - fail
Manual
Operation after end of test - no status
Manual
OK
Cancel

Result
RESULT SCREEN


Command properties
Auto save
Auto print
Print and save
OK
Cancel

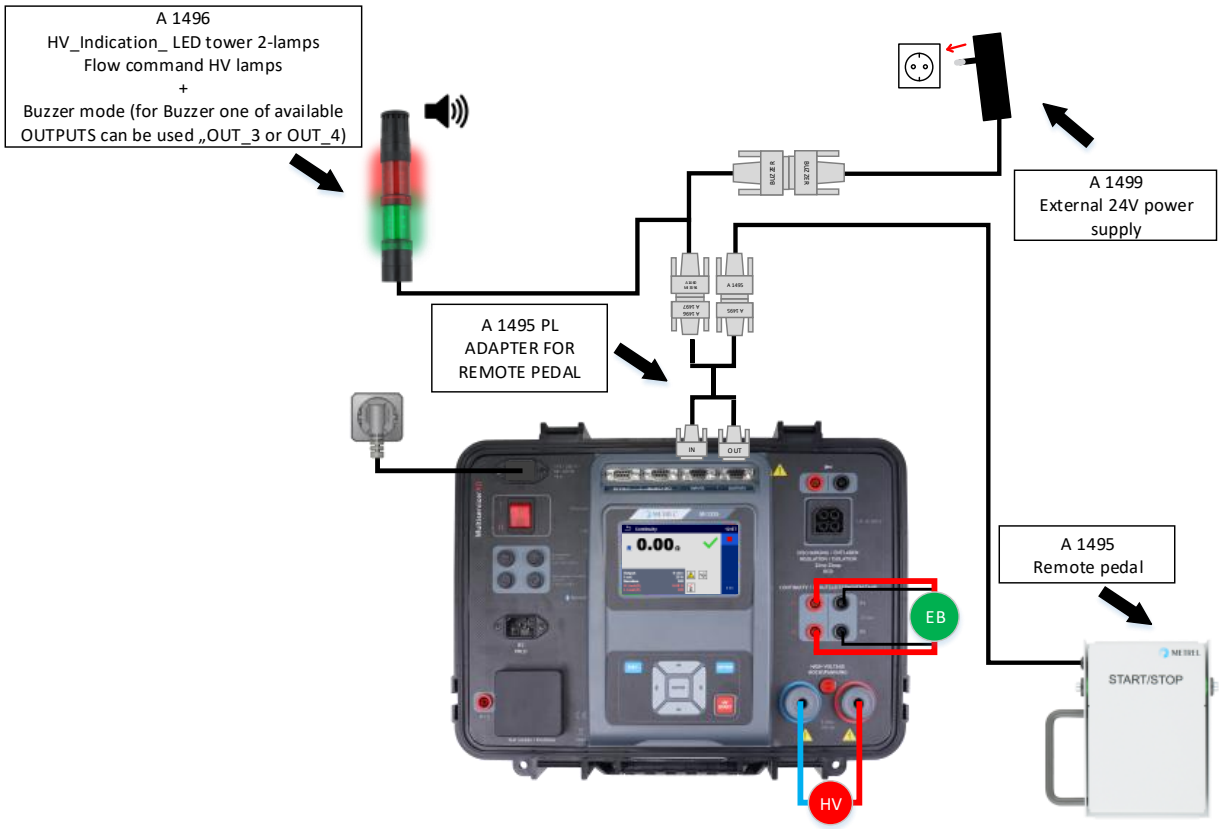

Auto Sequences®
MultiServicerXD
EB-1, EB2
EB-1., R-iso, A 1511
EB-1, HV AC
EB-1, Scann, Print
EB-1., HV, R-iso
Machine ID
EB-1., R-iso, A 1511
Next test Earth Continuity.
Press, Start on A 1511.
Continuity
R 0.00 Ω
Up to 50X
After finished EB testing
press END LOOP
R iso
Riso >199.9 MΩ
Um 525 V
Time: 5 s
Up to 50X
After finished Riso testing
press END LOOP
AUTO SAVE

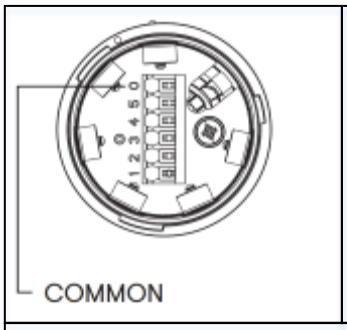
5.3. How to enable HV lamps & Buzzer

The MI 3325 instrument is intended, among other things, for performing high-voltage tests. With the correct configuration of the test sequence, and the correctly set / connected optional accessories, it is possible to enable the external signal lights required when performing the HV test. The following example will show how to prepare a test sequence that will enable HV lamps & remote start of a test sequence over the remote pedal.

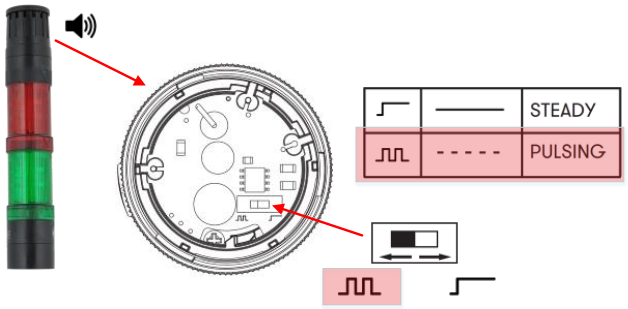
In the following steps it will be shown:

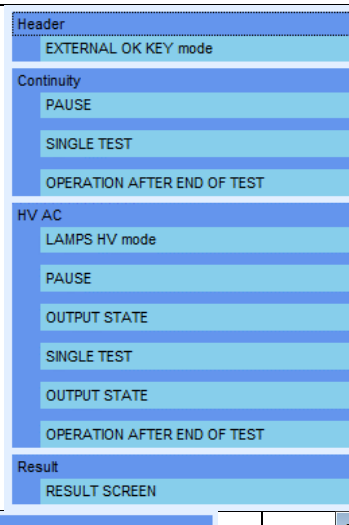
- How to connect and enable HV lamps, using flow command
  - LAMPS HV mode
- How to connect and enable/disable buzzer, using flow command
  - OUTPUT STATE
- How to connect and enable remot control with pedal, using flow command
  - >EXTERNAL OK KEY mode<
- Use of flow command >PAUSE<
- Execution of 4-W Earth cntinuity test (EB)
- Execution of High voltage test (HV)
- How t manually save results into Memory Organizer

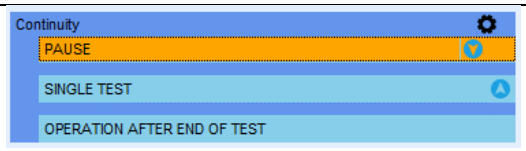


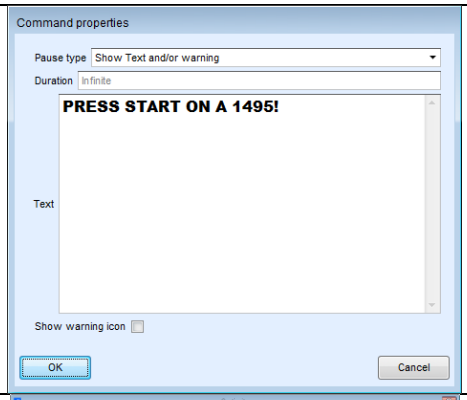


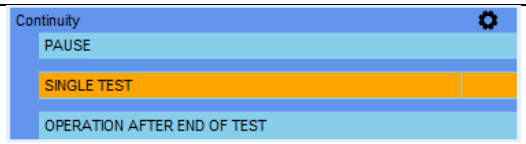
Enabling buzzer on A 1496, connected to CE MultiTester	
LED TOWER (PIN CONNECTOR)	**RS232 CABLE**
GND (0)	Gray / Grau
/ (5)	/
/ (4)	/
Buzzer (3)	Brown/braun (Output 3) or White / Weiß (Output 4)
Red LED (2)	Pink / Rosa
Green LED (1)	Yellow / Gelb

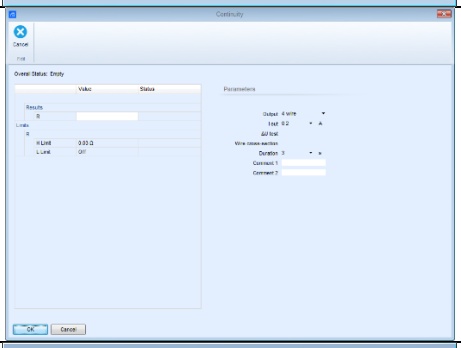


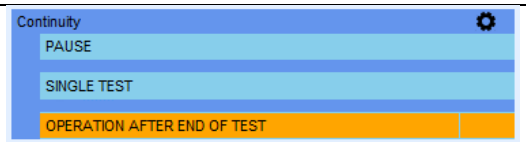


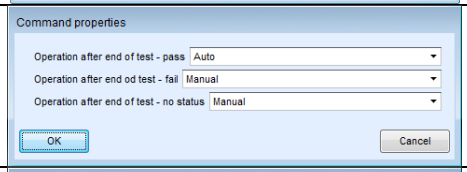

Continuity
PAUSE
SINGLE TEST
OPERATION AFTER END OF TEST

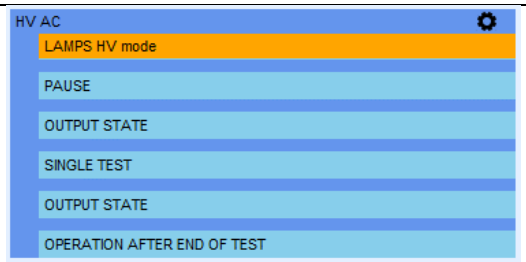

Command properties
Pause type
Show Text and/or warning
Duration
Infinite
PRESS START ON A 1495!
Text
Show warning icon
OK
Cancel

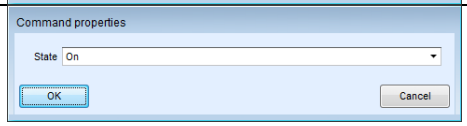

Continuity
PAUSE
SINGLE TEST
OPERATION AFTER END OF TEST

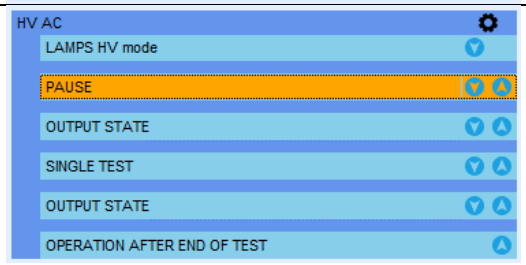


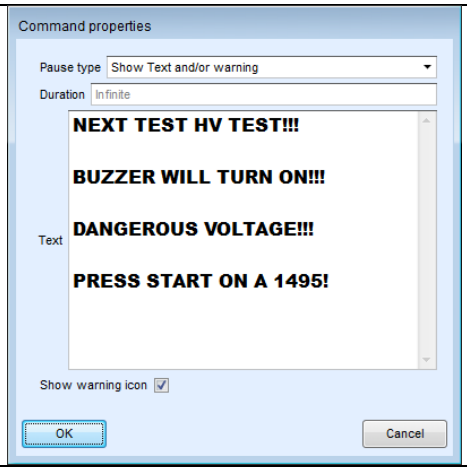

Continuity
PAUSE
SINGLE TEST
OPERATION AFTER END OF TEST

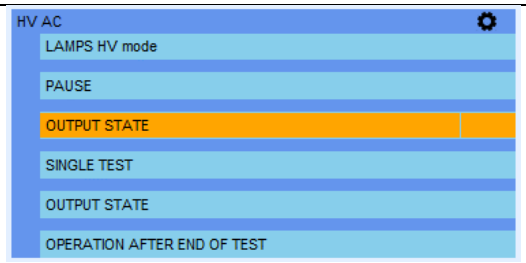

Command properties
Operation after end of test - pass
Auto
Operation after end od test - fail
Manual
Operation after end of test - no status
Manual
OK
Cancel

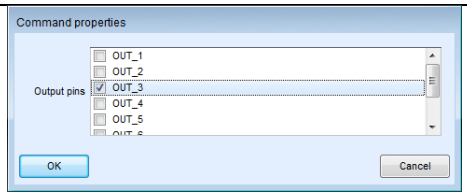

HV AC
LAMPS HV mode
PAUSE
OUTPUT STATE
SINGLE TEST
OUTPUT STATE
OPERATION AFTER END OF TEST


Command properties
State
On
OK
Cancel

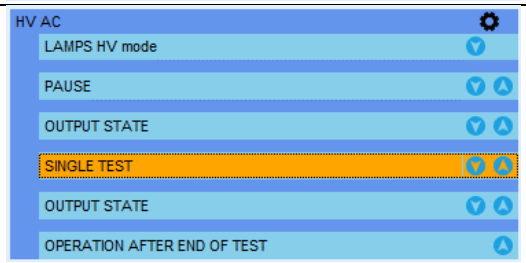

HV AC
LAMPS HV mode
PAUSE
OUTPUT STATE
SINGLE TEST
OUTPUT STATE
OPERATION AFTER END OF TEST

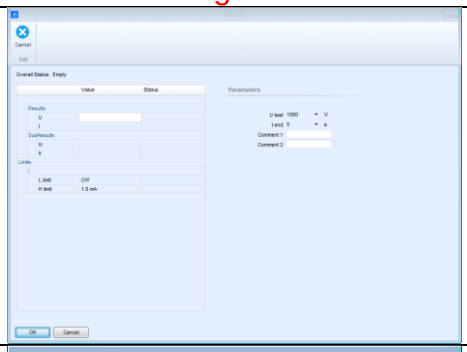

Command properties
Pause type
Show Text and/or warning
Duration
Infinite
NEXT TEST HV TEST!!!
BUZZER WILL TURN ON!!!
DANGEROUS VOLTAGE!!!
PRESS START ON A 1495!
Text
Show warning icon
OK
Cancel

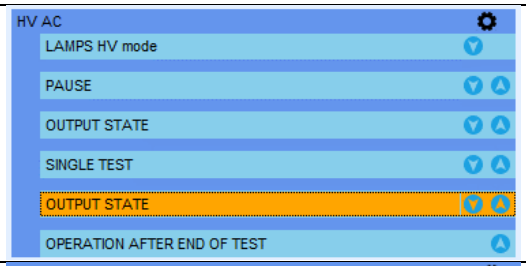


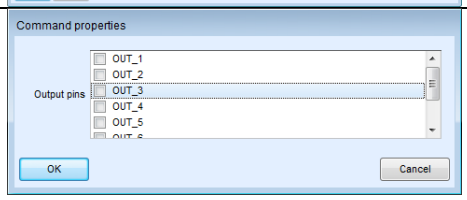


Enabling buzzer!!!

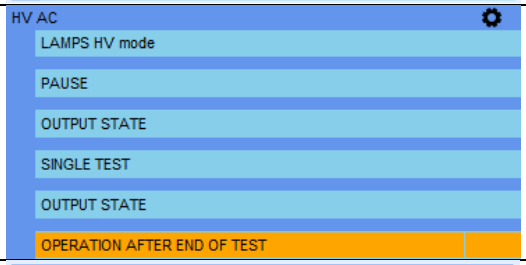


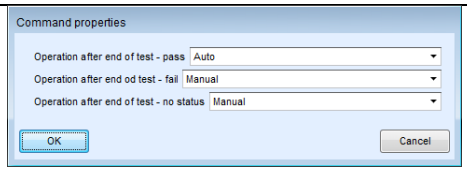


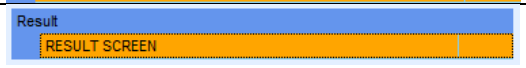


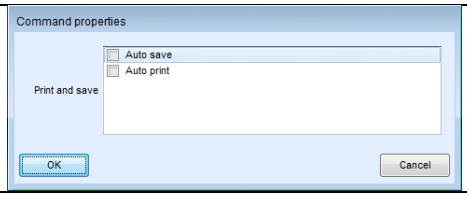


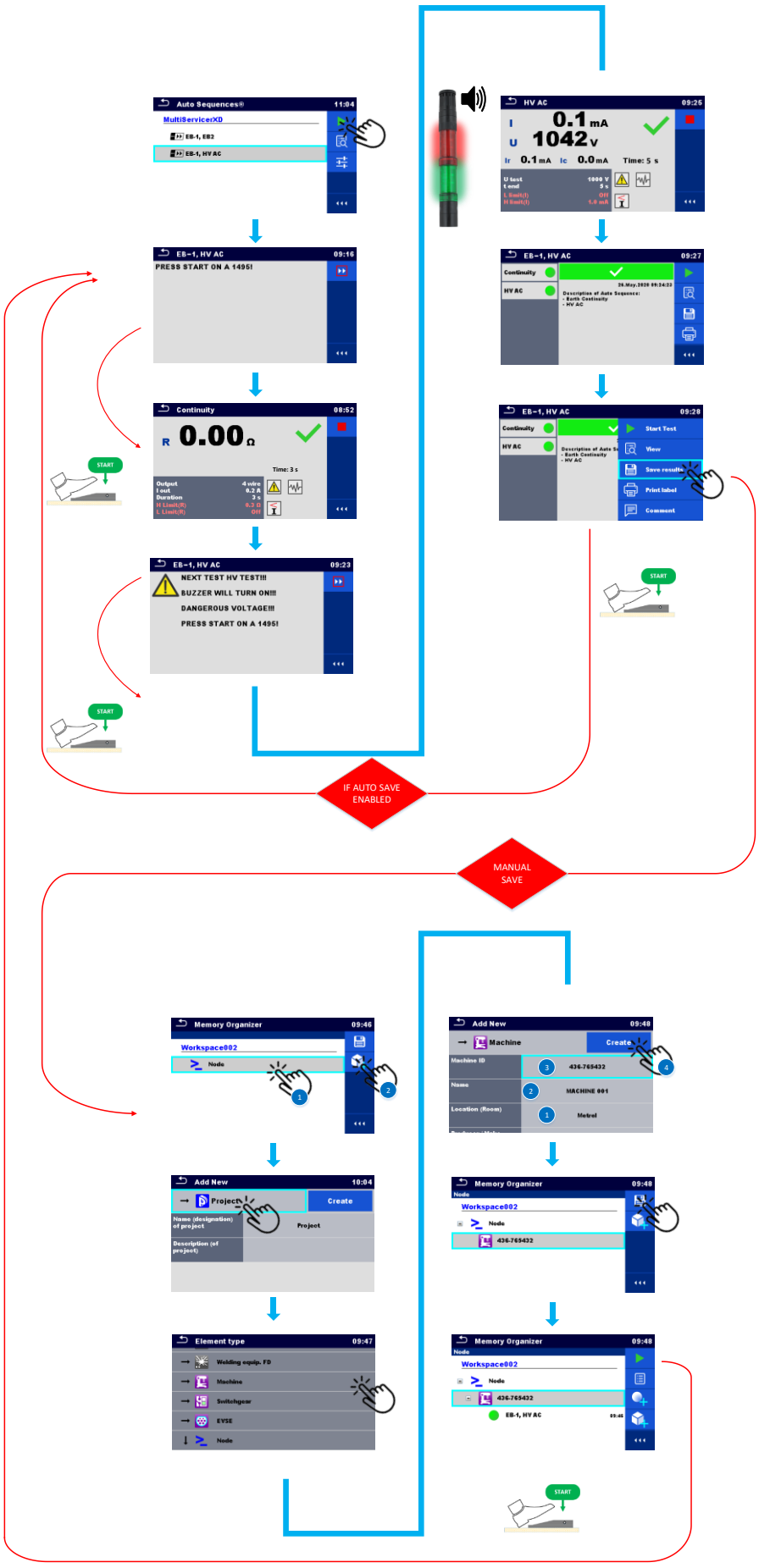
Disabling buzzer!!!









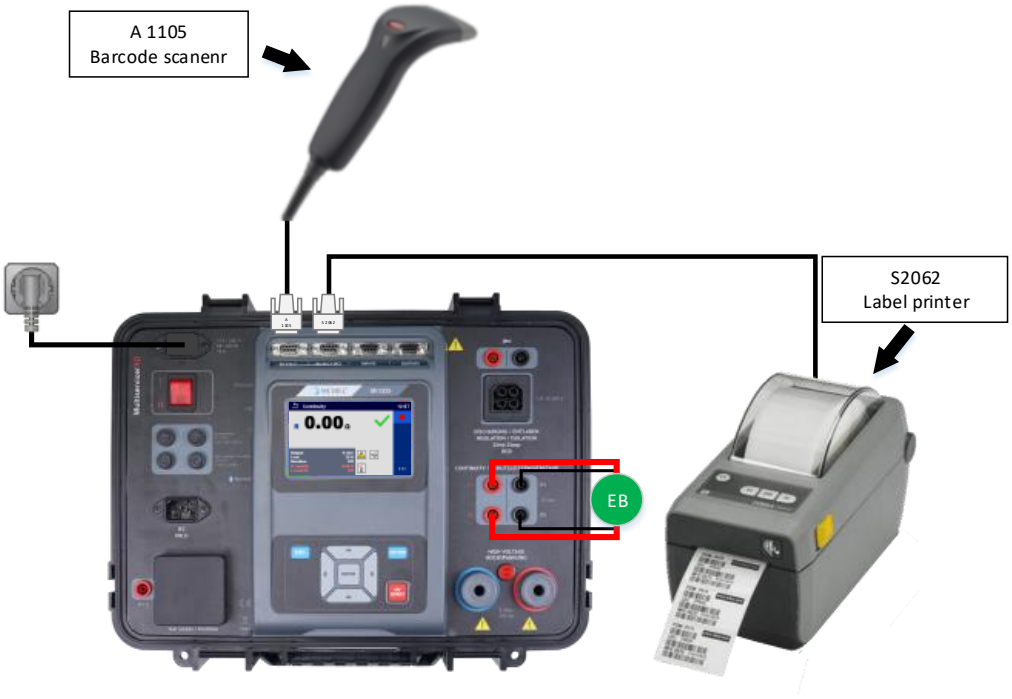

Auto Sequences®
MultiServicerXD
EB-1, EB2
EB-1, HV AC
EB-1, HV AC
PRESS START ON A 1495!
Continuity
R 0.00 Ω
Time: 3 s
EB-1, HV AC
NEXT TEST HV TEST!!!
BUZZER WILL TURN ON!!!
DANGEROUS VOLTAGE!!!
PRESS START ON A 1495!
START
START
START
HV AC
I 0.1 mA
U 1042 V
Ir 0.1 mA Ic 0.0 mA Time: 5 s
EB-1, HV AC
Continuity
HV AC
EB-1, HV AC
Continuity
HV AC
Start Test
View
Save results
Print label
Comment
IF AUTO SAVE ENABLED
MANUAL SAVE
Memory Organizer
Workspace002
Node
Add New
Machine
Create
Machine ID
436-765432
Name
MACHINE 001
Location (Room)
Metrel
Add New
Project
Create
Name (designation) of project
Project
Description (of project)
Memory Organizer
Workspace002
Node
436-765432
Element type
Welding equip. FD
Machine
Switchgear
EVSE
Node
Memory Organizer
Workspace002
Node
436-765432
EB-1, HV AC
START

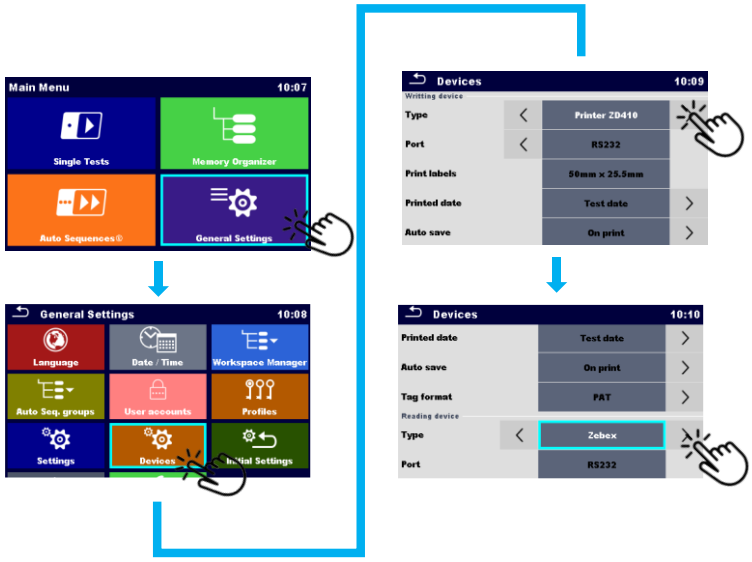
5.4. How to enable barcode reader and auto print

One of the instrument's strong features is the support of optional peripheral devices such as reading and writing devices. The following example will show how to prepare a test sequence that will enable HV lamps & remote start of a test sequence over the remote pedal.

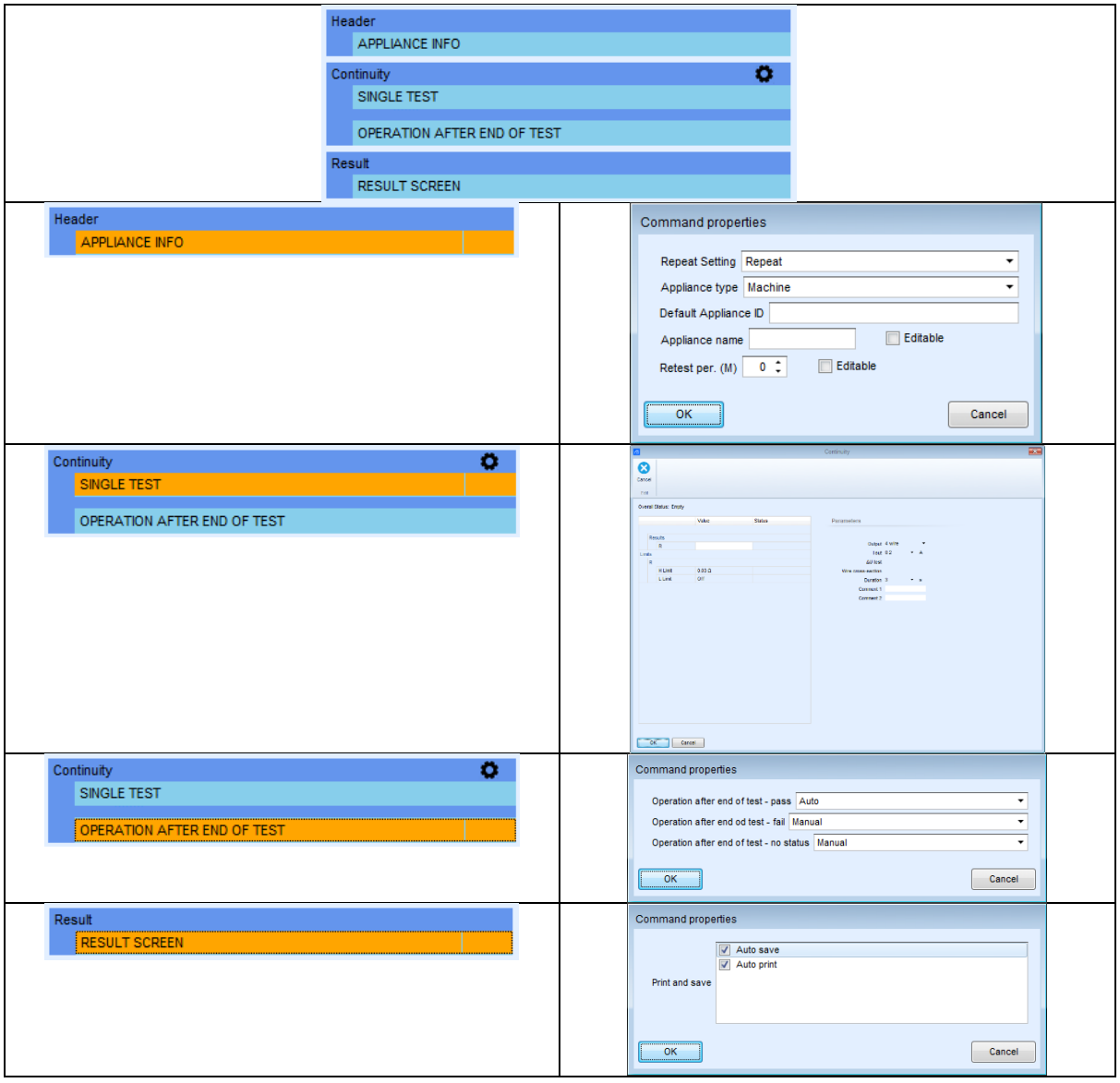
In the following steps it will be shown:

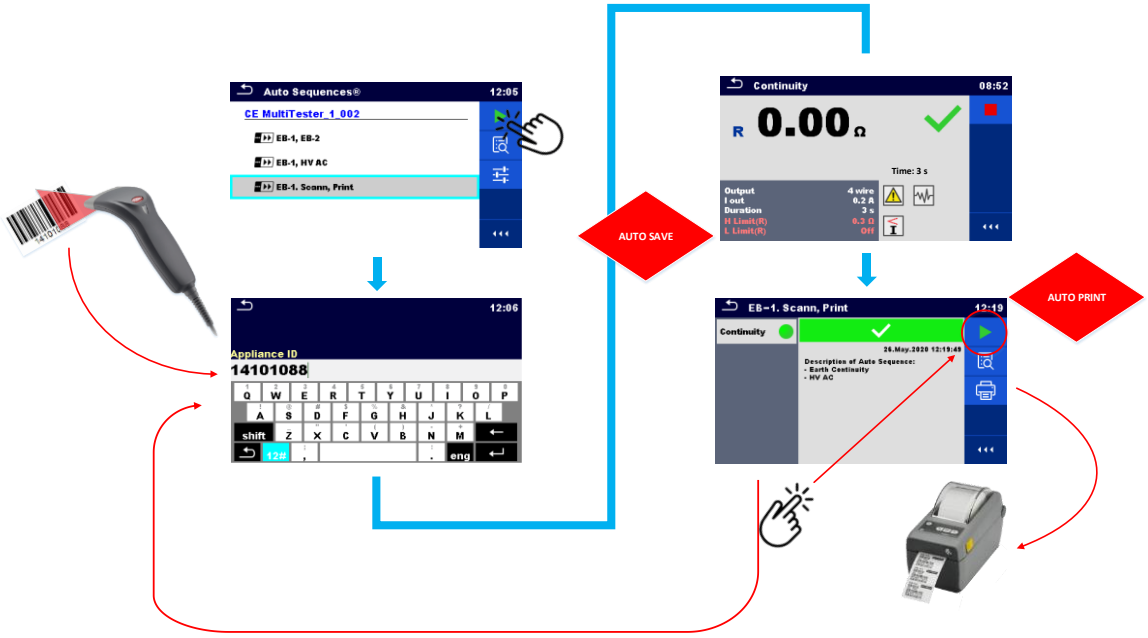
- How to Setup, barcode printer & Barcode scanner
- How to connect and enable Barcode scanner, using flow command
    - APPLIANCE INFO
- Execution of 4-W Earth continuity test (EB)
- How to enable auto save, using command
    - Auto save
- How to connect and enable barcode printer, using command
    - Auto print



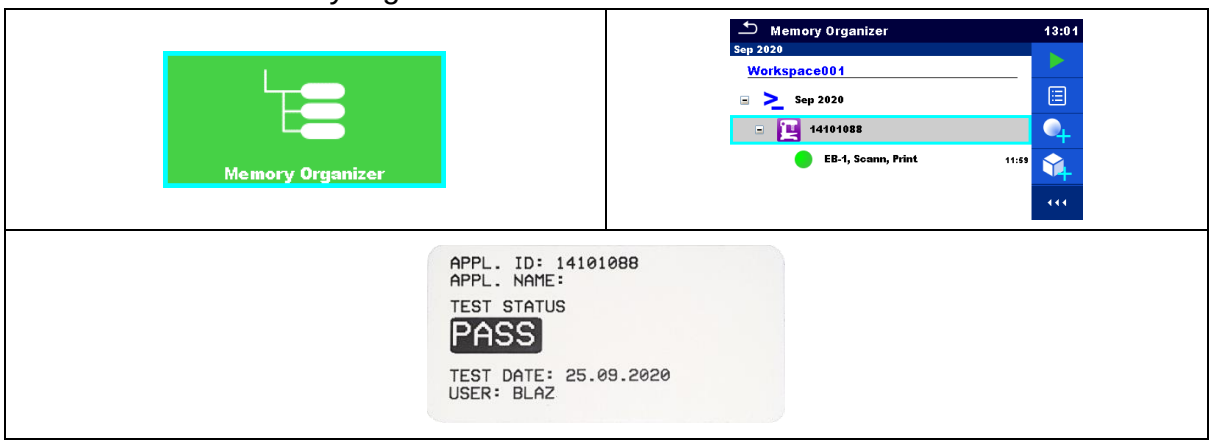


Setup of reading and witing devices





Structure in the memory organizer



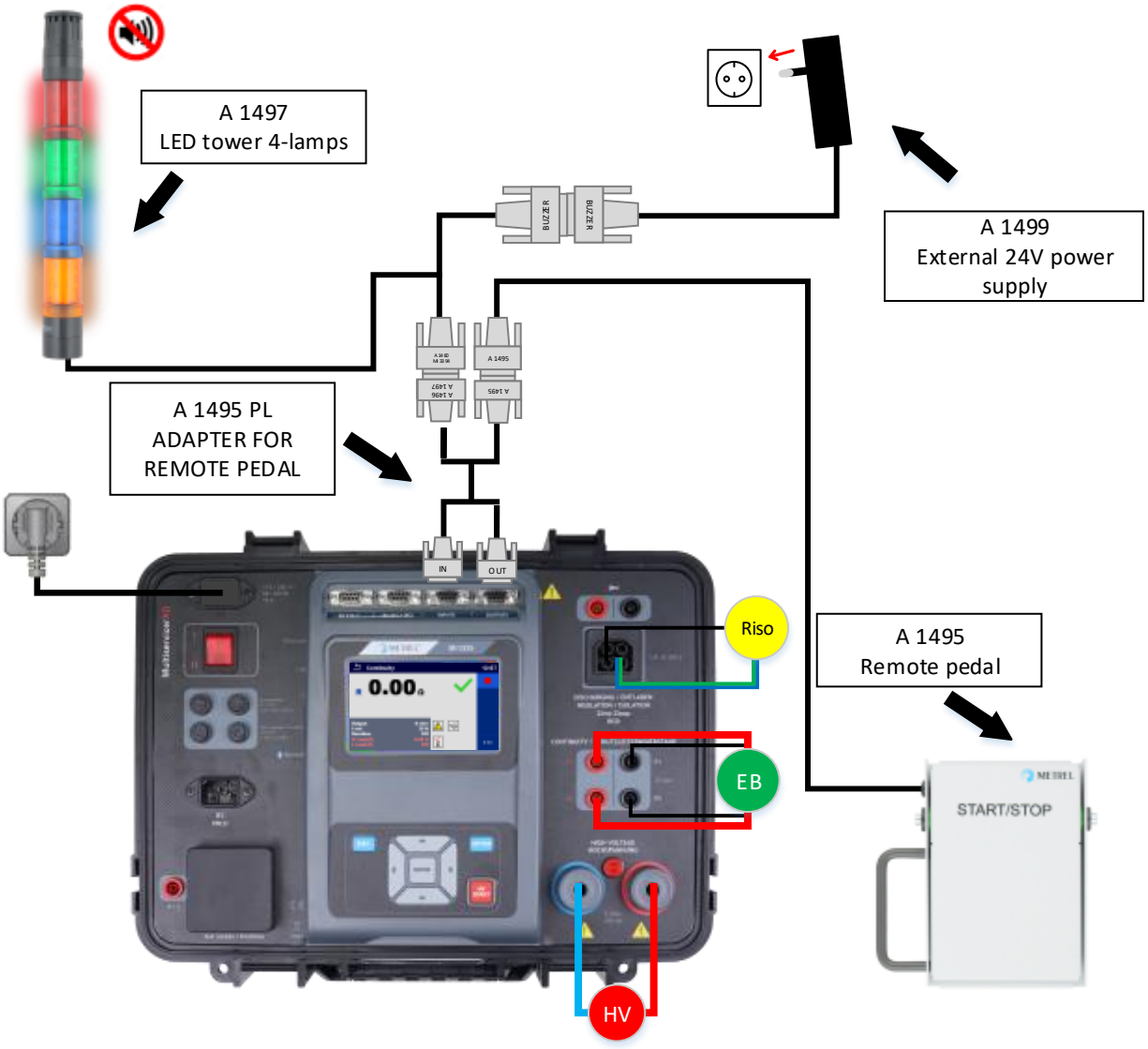
5.5. How to enable PASS/FAIL status lamps, HV lamps and remote control

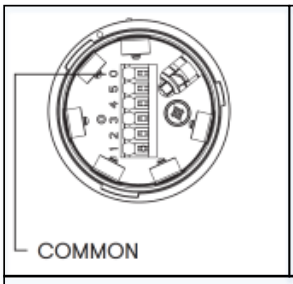
In certain cases, in addition to the indication of the high-voltage test, an indication of the status of the results (PASS / FAIL) is also desirable.

This is especially welcome in applications where tests are run using a remote control (test pedal, or tip commander), and where the user does not always have the option to look at the instrument's screen to evaluate test results.
The following example will show how to prepare a test sequence that will enable PASS/FAIL status lamps, HV lamps & remote start of a test sequence over the remote pedal.

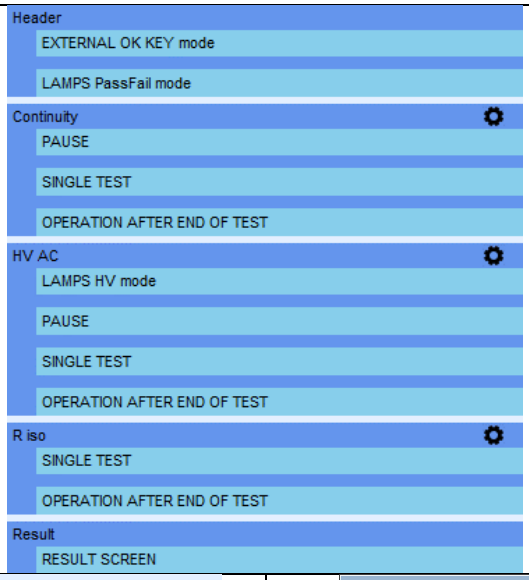
In the following steps it will be shown:

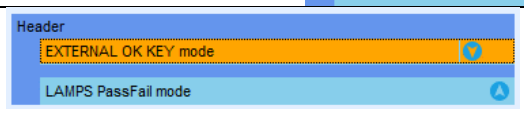
- How to connect and enable remote control with A 1495, using flow command
  - >EXTERNAL OK KEY mode<
- How to connect and enable HV + PASS/FAIL lamps (A 1497), using flow commands
  - LAMPS HV mode
  - LAMPS passFail mode
- Use of flow command >PAUSE<
- Execution of Insulation resistance test (Riso)
- Execution of 4-W Earth cntinuity test (EB)
- Execution of High voltage test (HV)
- How to enable auto save, using command
  - Auto save

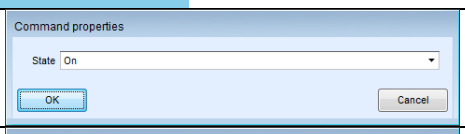


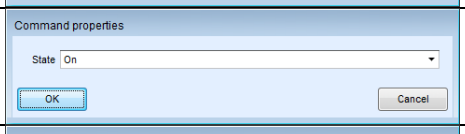


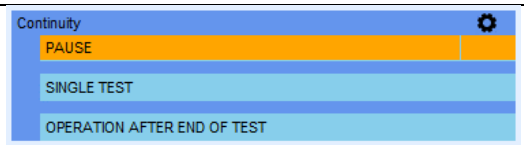
Enabling buzzer on A 1496, connected to CE MultiTester	
LED TOWER (PIN CONNECTOR)	**RS232 CABLE**
GND (0)	Gray / Grau
Buzzer (5)	/ (Not supported in this configuration)
Red LED (4)	Pink / Rosa
Green LED (3)	Yellow / Gelb
Blue LED (2)	Brown / Braun
Orange LED (1)	White / Weiß

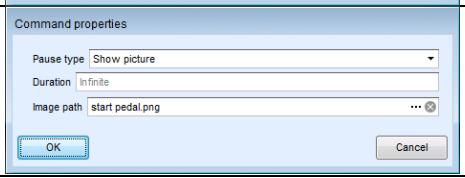


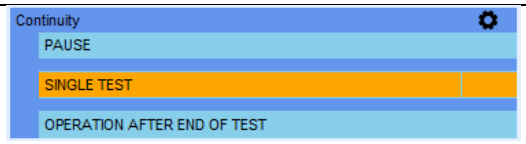


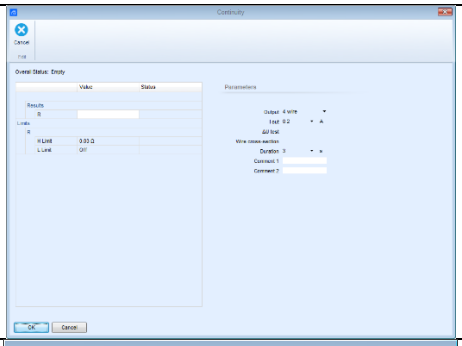


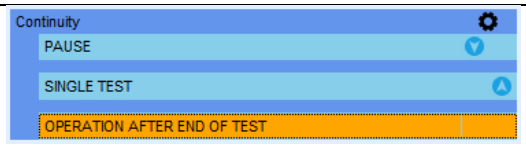


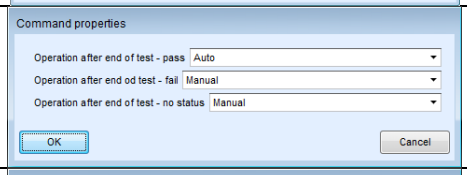


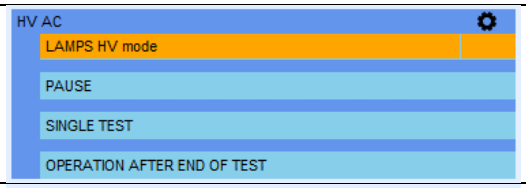


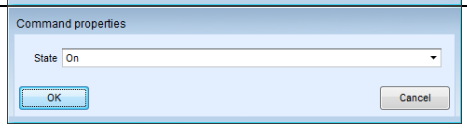

Continuity
PAUSE
SINGLE TEST
OPERATION AFTER END OF TEST

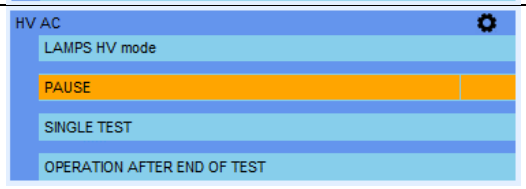



Continuity
PAUSE
SINGLE TEST
OPERATION AFTER END OF TEST

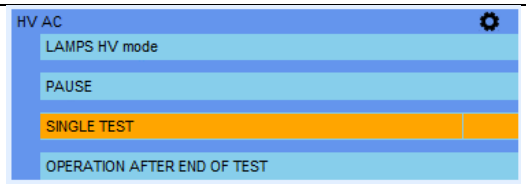

Command properties
Operation after end of test - pass
Auto
Operation after end od test - fail
Manual
Operation after end of test - no status
Manual
OK
Cancel

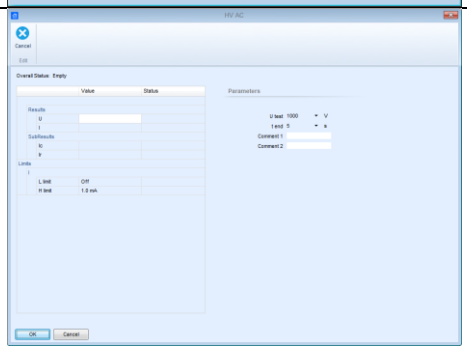

HV AC
LAMPS HV mode
PAUSE
SINGLE TEST
OPERATION AFTER END OF TEST

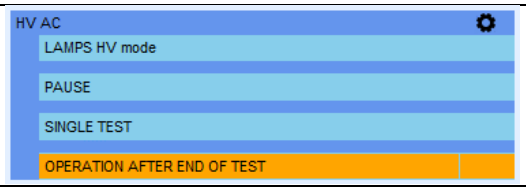

Command properties
State
On
OK
Cancel

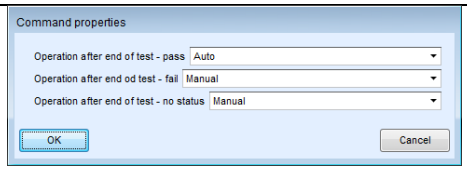

HV AC
LAMPS HV mode
PAUSE
SINGLE TEST
OPERATION AFTER END OF TEST

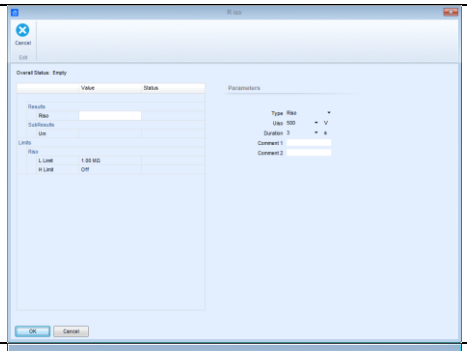
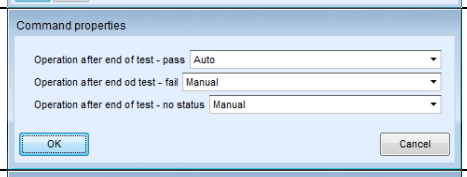
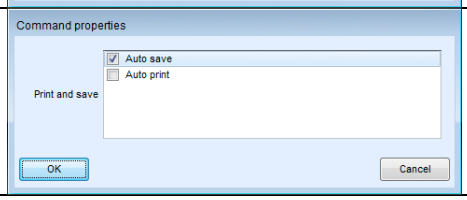
Command properties
Pause type
Show Text and/or warning
Duration
Infinite
Text
NEXT TEST HV TEST!!!
DANGEROUS VOLTAGE!!!
PRESS START ON A 1495.
Show warning icon
OK
Cancel

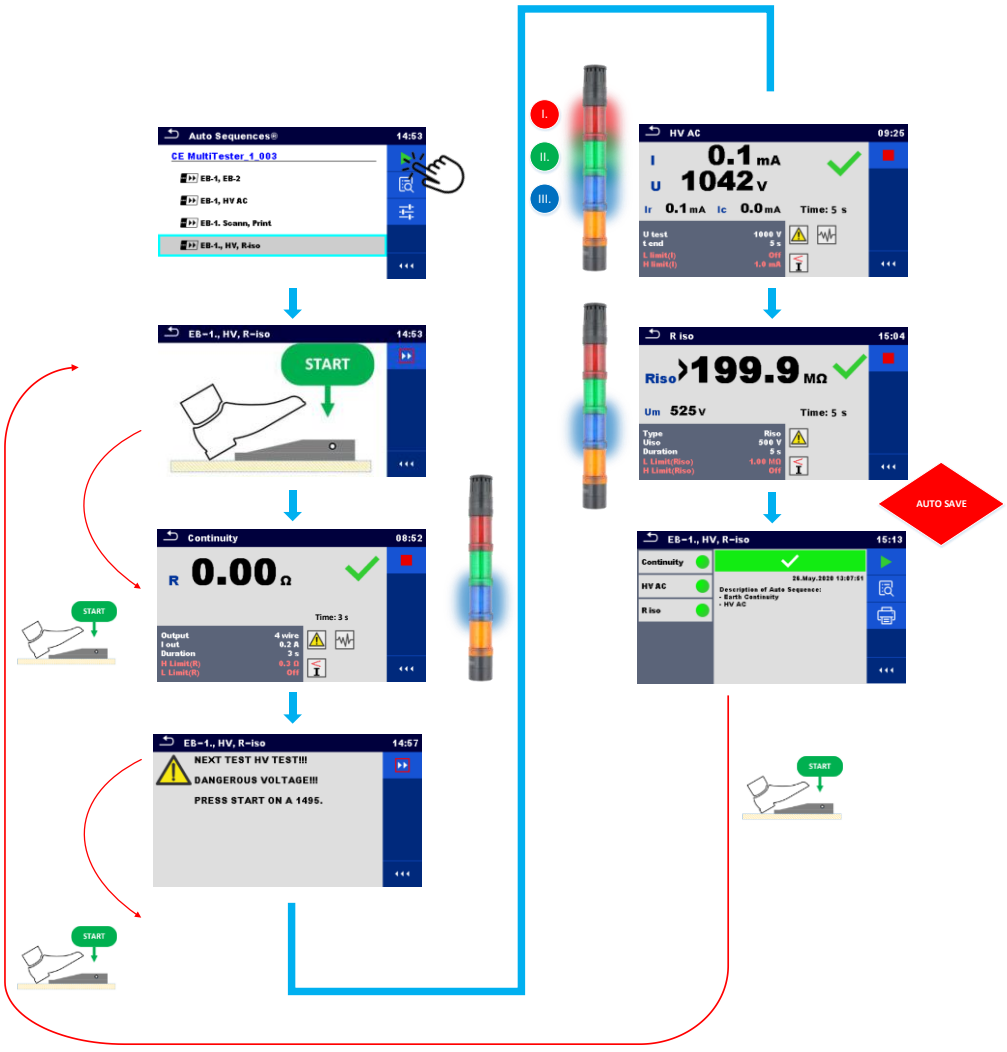

HV AC
LAMPS HV mode
PAUSE
SINGLE TEST
OPERATION AFTER END OF TEST



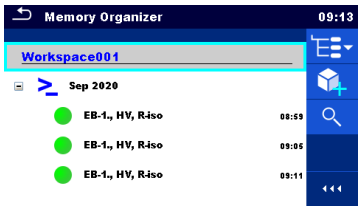

HV AC
LAMPS HV mode
PAUSE
SINGLE TEST
OPERATION AFTER END OF TEST


Command properties
Operation after end of test - pass
Auto
Operation after end od test - fail
Manual
Operation after end of test - no status
Manual
OK
Cancel

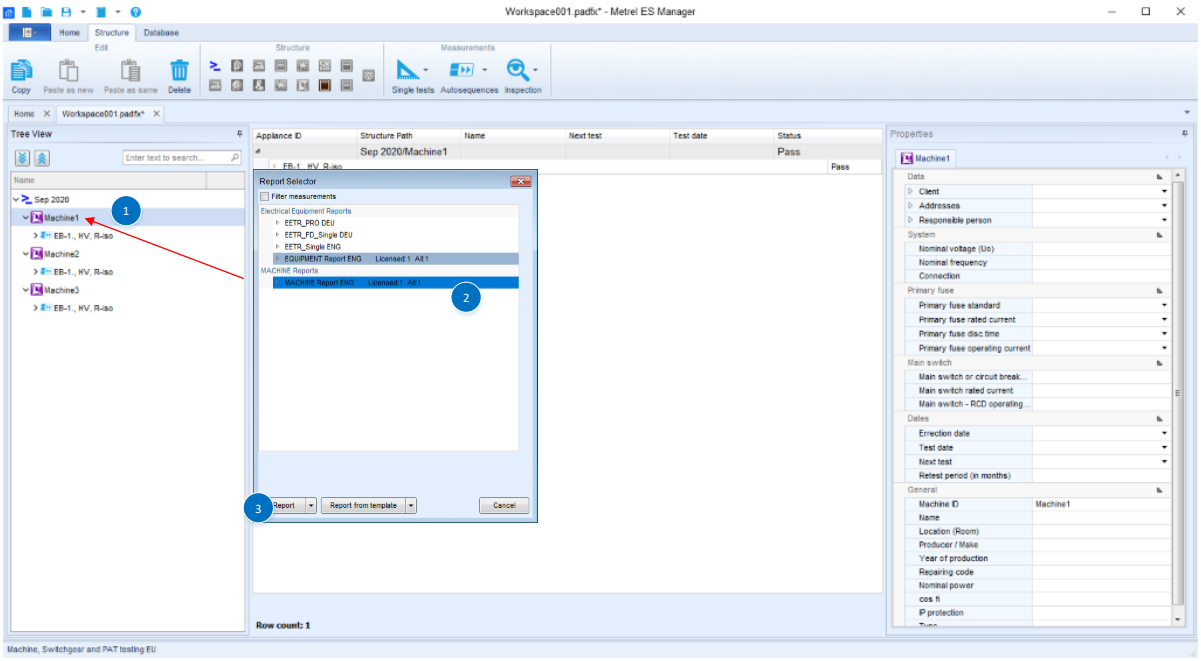
R iso SINGLE TEST OPERATION AFTER END OF TEST	
R iso SINGLE TEST OPERATION AFTER END OF TEST	
Result RESULT SCREEN	



Structure in the memory organizer



For creation of professional test reports the measurements has to be moved under appropriate structure element: Appliance, Appliance FD, Welding equip., Welding equip. FD, Machine, Switchgear or EVSE. This can be done on the MESM SW.



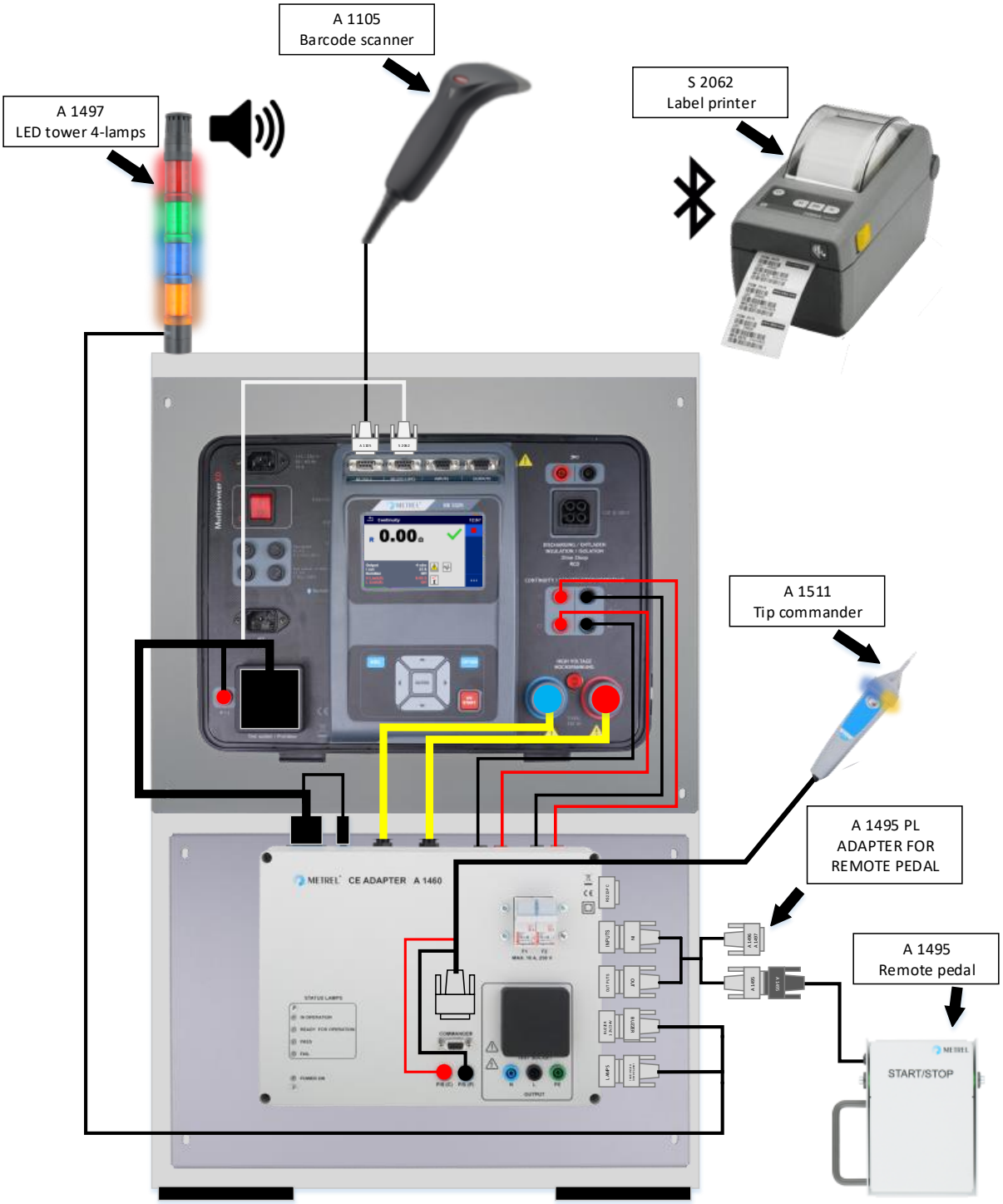
5.6. How to enable test setup with CE Adapter A 1460

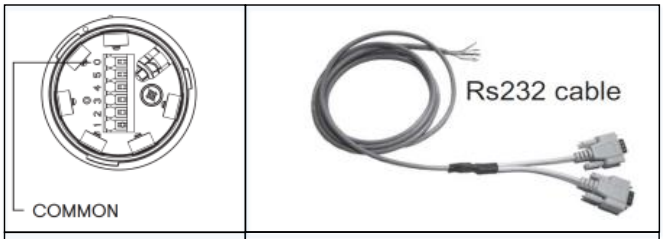
This section shows how to prepare a test sequence to be performed in combination with the MultiServicerXD instrument and the CE Adapter. A number of optional accessories will be used along with the instrument and adapter. The purpose is to show the entire solution of the test flow, from entering the ID number with barcode scanner, performing passive tests including multiple point testing. Continuing with high voltage testing, and active (Leaks&Power) testing at the end. A number of optional accessories will also be included in the test process:
- signal lights
- bar code reader
- printer
- tip commander/pedal

Note!
In certain tests, the measuring instrument checks "in the pre-test" whether the tested device connected to the instrument test terminals meets certain pre-set criteria.
If the connected device does not meet the criteria set in the measuring instrument, a warning message appears on the instrument screen.
These warning messages can indicate the user different statuses:
- whether the tested device (ON / OFF) switch must be turned on,
- whether the device connected to the test socket is faulty, etc...

Using Flow command “NO NOTIFICATION mode” these warning messages can be automatically skipped.

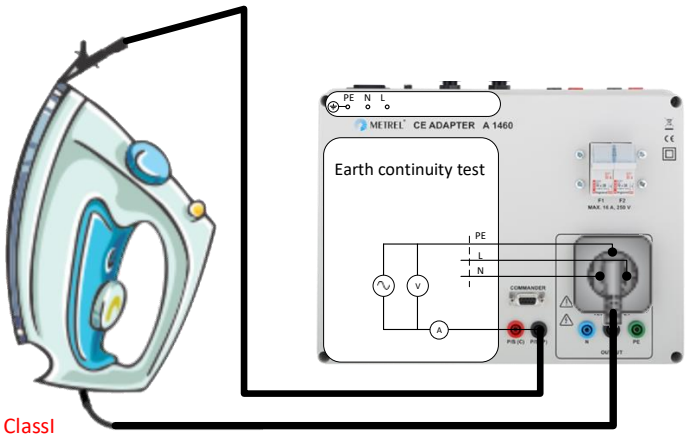
In the following steps it will be shown:
- How to connect and enable Barcode scanner, using flow command
  - APPLIANCE INFO
- How to connect and enable remote cntrol with A 1511 or/and A 1495, using flow command
  - >EXTERNAL OK KEY mode<
- How to connect and enable HV + PASS/FAIL lamps + Buzezr (A 1497), using flow commands
  - LAMPS HV mode
  - LAMPS passFail mode
  - BUZZER mode
- Execution of 4-W Earth cntinuity test (EB) >sequence of 3-test steps<
- How to disable notifications, using flow command
  - NO NOTIFICATION mode
- Execution of Insulation resistance test (Riso)
- Execution of High voltage test (HV)
- Execution of Leaks & Pwer test
- How to enable auto save, using command
  - Auto save
- How to connect and enable barcode printer, using command
  - Auto print


A 1105
Barcode scanner
A 1497
LED tower 4-lamps
S 2062
Label printer
A 1511
Tip commander
A 1495 PL
ADAPTER FOR
REMOTE PEDAL
A 1495
Remote pedal
METREL CE ADAPTER A 1460
START/STOP

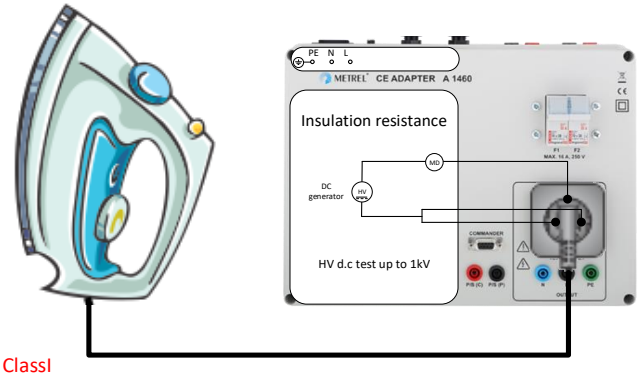


LED TOWER (PIN CONNECTOR)	RS232 CABLE
GND (0)	Gray / Grau
Buzzer (5)	Green / Grün
Red LED (4)	Pink / Rosa
Green LED (3)	Yellow / Gelb
Blue LED (2)	Brown / Braun
Orange LED (1)	White / Weiß

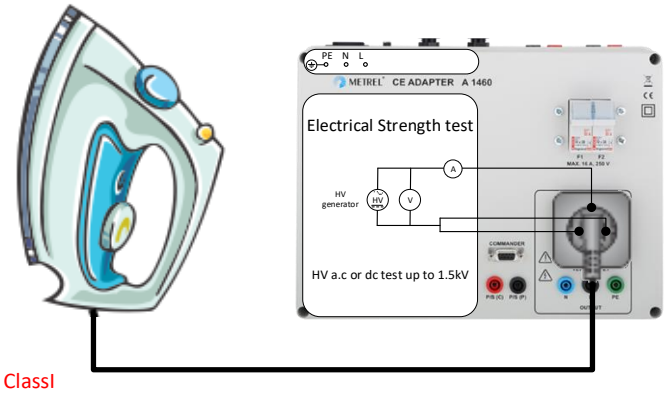
How testing is performed via CE ADAPTER



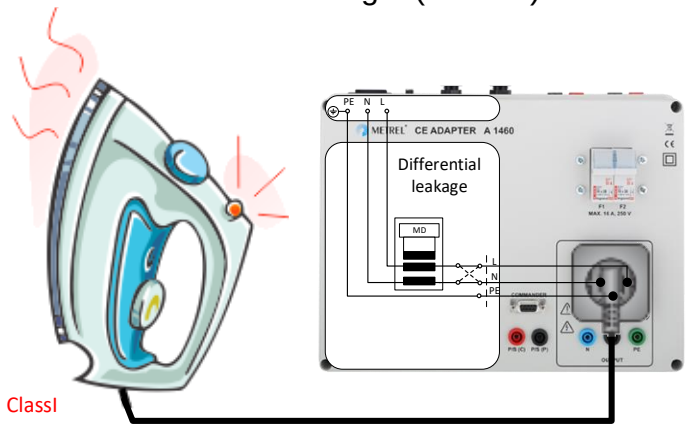
Earth continuity test (EB)



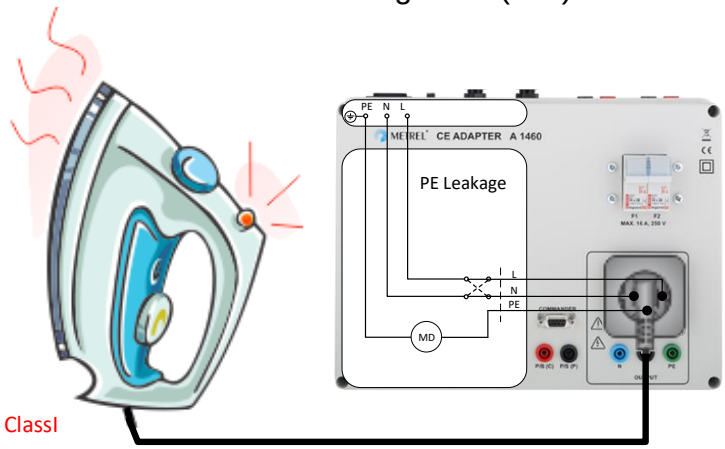
Insulation resistance test (Riso)



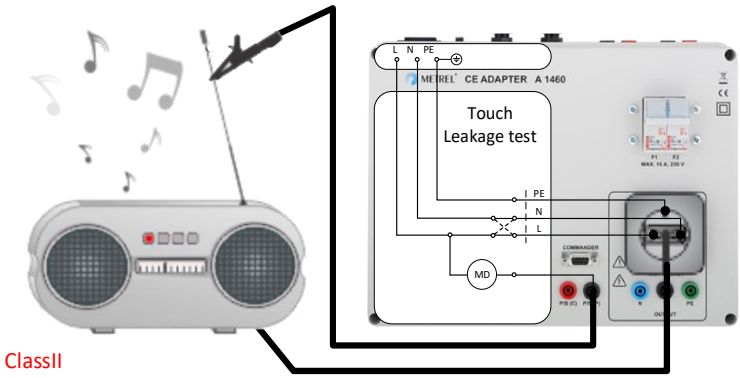
Electrical strength (HV test)



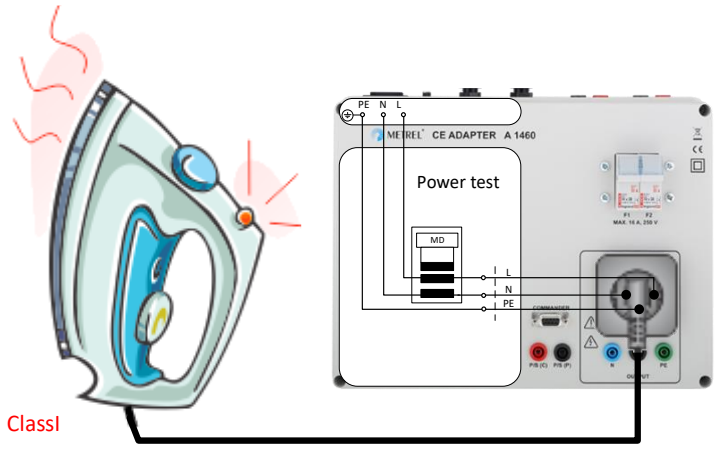
Differential leakage test (Idiff)



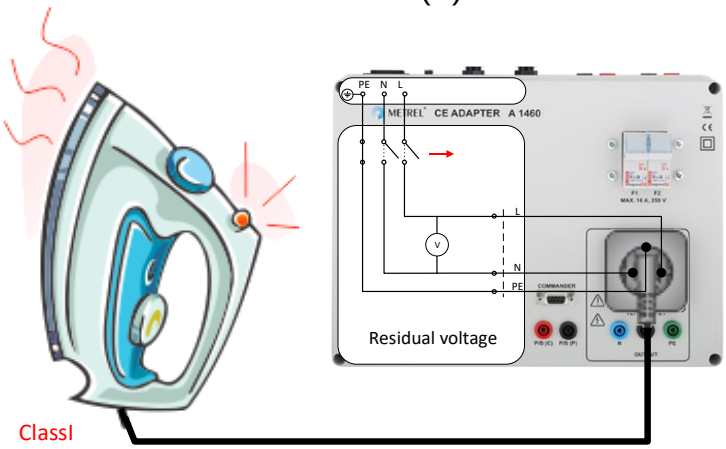
PE leakage test (IPE)



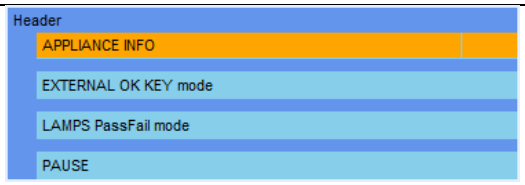
Touch leakage test (Itouch)

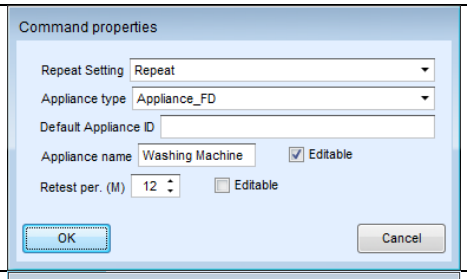


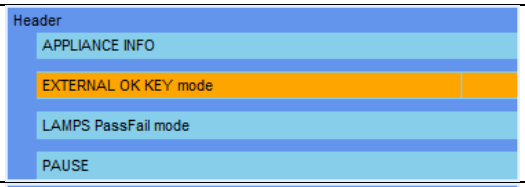
Power test (P)

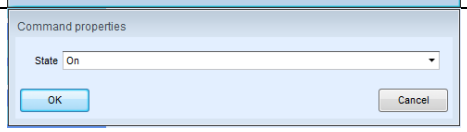


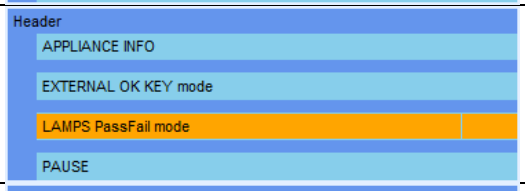
Discharging time (Residual voltage test) (Tdisch)

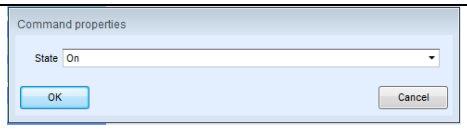

Header
APPLIANCE INFO
EXTERNAL OK KEY mode
LAMPS PassFail mode
PAUSE

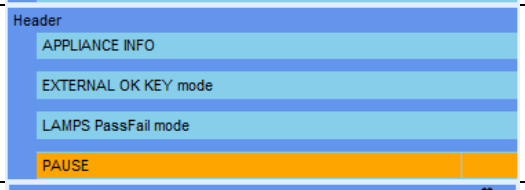

Command properties
Repeat Setting
Repeat
Appliance type
Appliance_FD
Default Appliance ID
Appliance name
Washing Machine
Editable
Retest per. (M)
12
Editable
OK
Cancel

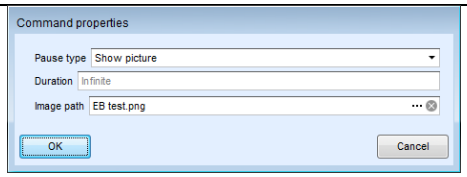

Header
APPLIANCE INFO
EXTERNAL OK KEY mode
LAMPS PassFail mode
PAUSE

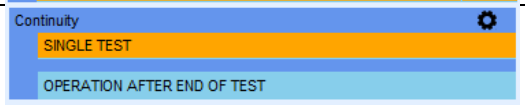

Command properties
State
On
OK
Cancel

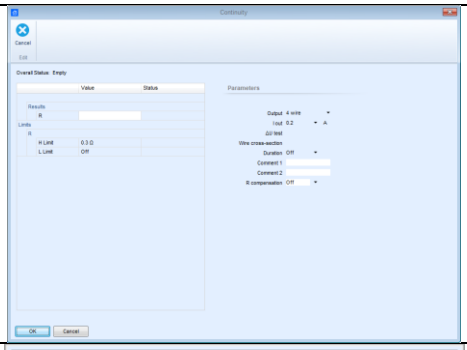

Header
APPLIANCE INFO
EXTERNAL OK KEY mode
LAMPS PassFail mode
PAUSE

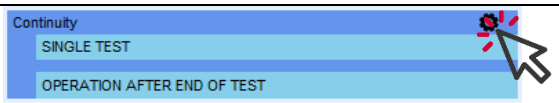

Command properties
State
On
OK
Cancel

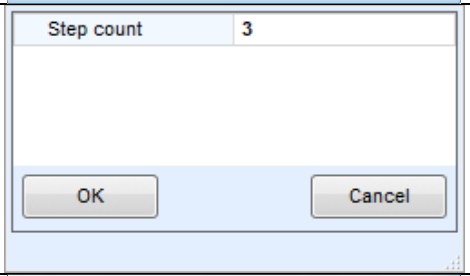

Header
APPLIANCE INFO
EXTERNAL OK KEY mode
LAMPS PassFail mode
PAUSE

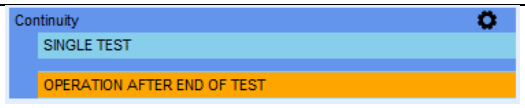

Command properties
Pause type
Show picture
Duration
Infinite
Image path
EB test.png
OK
Cancel

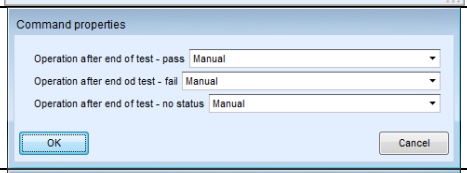

Continuity
SINGLE TEST
OPERATION AFTER END OF TEST

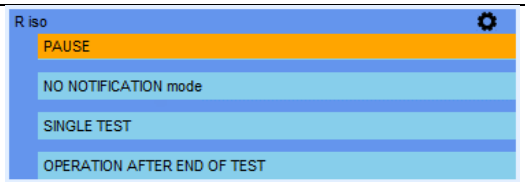


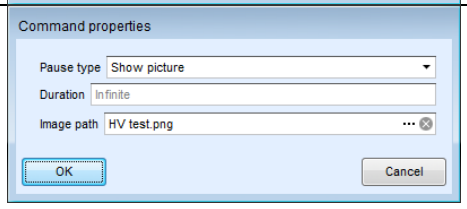

Continuity
SINGLE TEST
OPERATION AFTER END OF TEST


Step count
3
OK
Cancel


Continuity
SINGLE TEST
OPERATION AFTER END OF TEST


Command properties
Operation after end of test - pass
Manual
Operation after end od test - fail
Manual
Operation after end of test - no status
Manual
OK
Cancel


R iso
PAUSE
NO NOTIFICATION mode
SINGLE TEST
OPERATION AFTER END OF TEST


Command properties
Pause type
Show picture
Duration
Infinite
Image path
HV test.png
OK
Cancel

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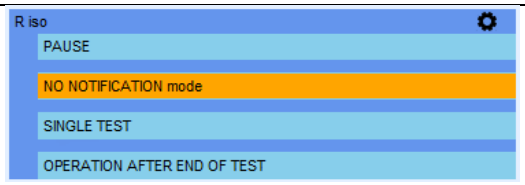
<td> 
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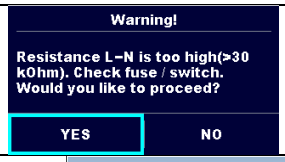
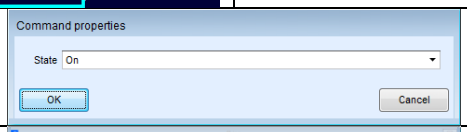
<td> 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<td>Possible cause:
Device under test is not switched on.

Message will be skipped!</td>
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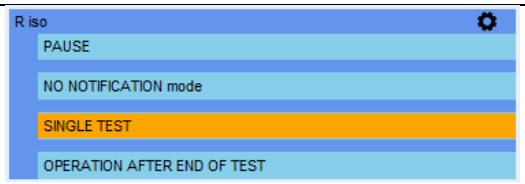
<td> 
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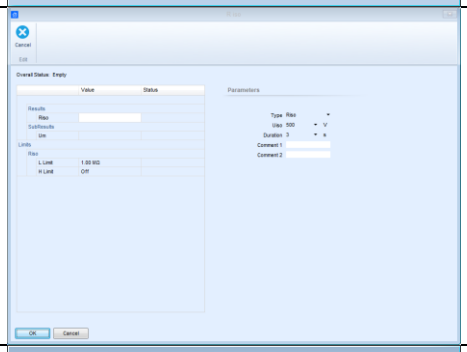
<td>  </td>
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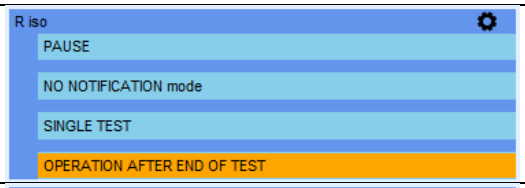
<td> 
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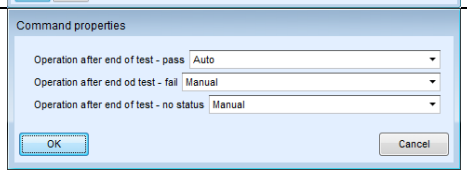
<td> 
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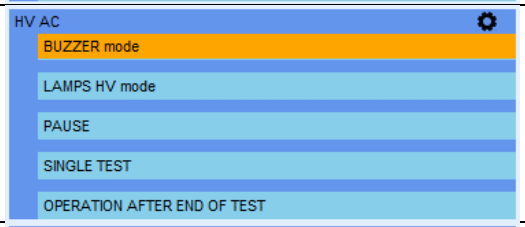
<td> 
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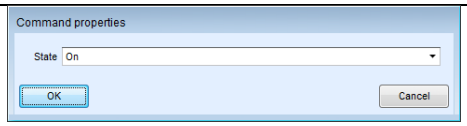
<td> 
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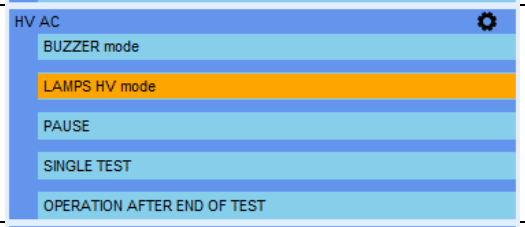
<td> 
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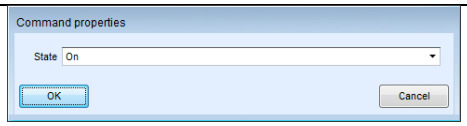
<td> 
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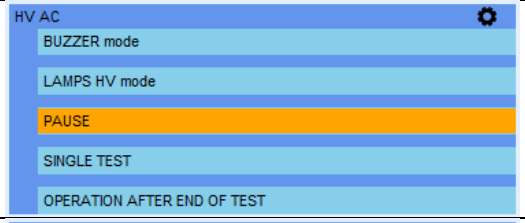
<td> 
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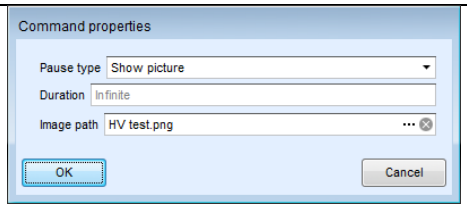
<td> 
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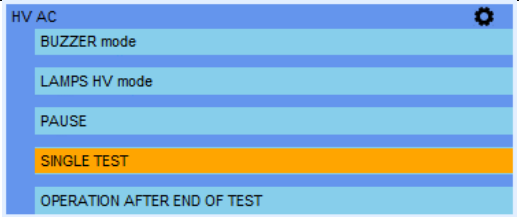
<td> 
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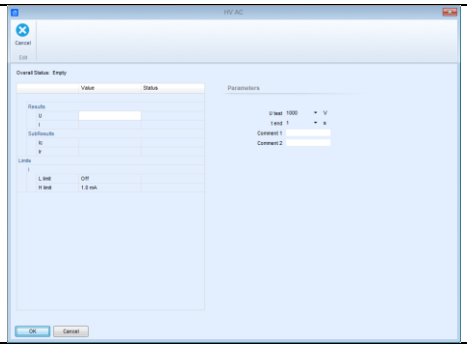
<td>  </td>
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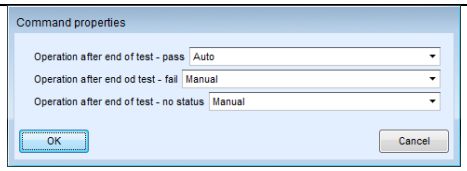
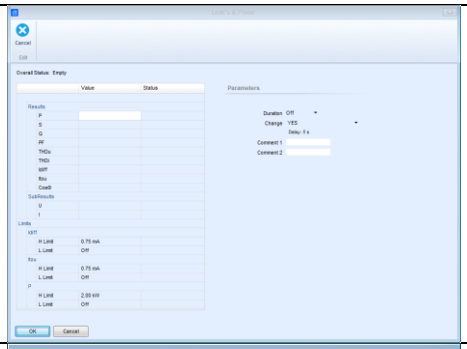
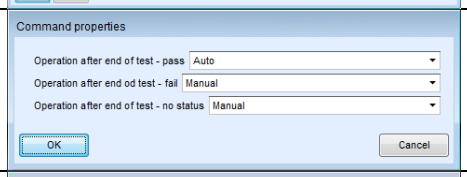
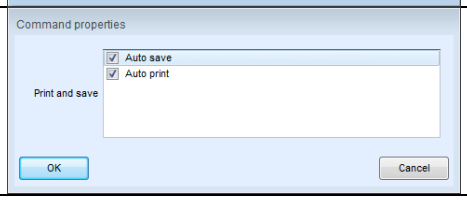
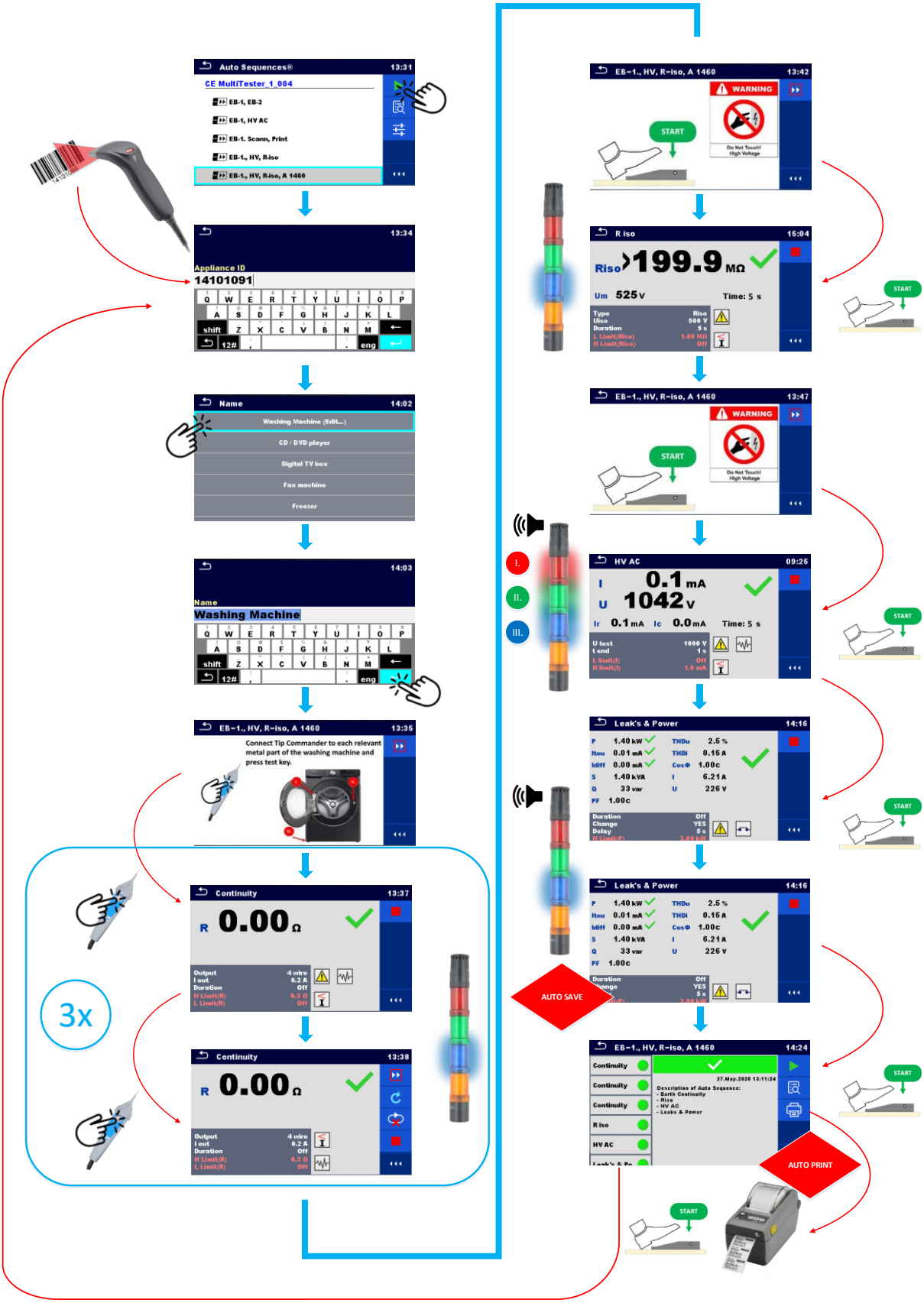
HV AC BUZZER mode LAMPS HV mode PAUSE SINGLE TEST OPERATION AFTER END OF TEST	
Leak"s & Power SINGLE TEST OPERATION AFTER END OF TEST	
Leak"s & Power SINGLE TEST OPERATION AFTER END OF TEST	
Result RESULT SCREEN	

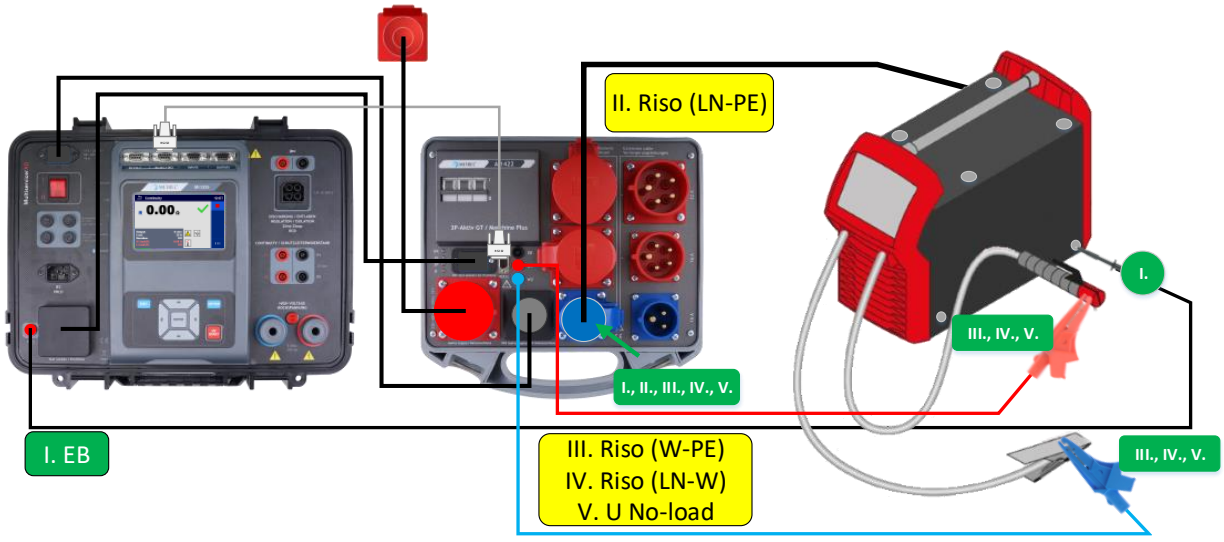

Auto Sequences®
13:31
CE MultiTester_1_004
EB-1, EB-2
EB-1, HV AC
EB-1, Scann, Print
EB-1., HV, R-iso
EB-1., HV, R-iso, A 1460
13:34
Appliance ID
14101091
Name
14:02
Washing Machine (Edit...)
CD / DVD player
Digital TV box
Fax machine
Freezer
14:03
Name
Washing Machine
EB-1., HV, R-iso, A 1460
13:35
Connect Tip Commander to each relevant metal part of the washing machine and press test key.
Continuity
13:37
R 0.00 Ω
Output 4 wire
I out 0.2 A
Duration Off
H Limit(R) 0.3 Ω
L Limit(R) Off
3x
Continuity
13:38
R 0.00 Ω
EB-1., HV, R-iso, A 1460
13:42
WARNING
Do Not Touch! High Voltage
START
R iso
15:04
Riso >199.9 MΩ
Um 525 V
Time: 5 s
Type Riso
Uiso 500 V
Duration 5 s
L Limit(Riso) 1.00 MΩ
H Limit(Riso) Off
EB-1., HV, R-iso, A 1460
13:47
WARNING
Do Not Touch! High Voltage
START
HV AC
09:25
I 0.1 mA
U 1042 V
Ir 0.1 mA Ic 0.0 mA
Time: 5 s
U test 1000 V
t end 1 s
L limit(I) Off
H limit(I) 1.0 mA
I.
II.
III.
Leak's & Power
14:16
P 1.40 kW
Rou 0.01 mA
Idiff 0.00 mA
S 1.40 kVA
Q 33 var
PF 1.00c
THDu 2.5 %
THDi 0.15 A
CosΦ 1.00c
I 6.21 A
U 226 V
Duration Off
Change YES
Delay 5 s
Leak's & Power
14:16
AUTO SAVE
EB-1., HV, R-iso, A 1460
14:24
Continuity
Continuity
Continuity
R iso
HV AC
Description of Auto Sequence:
- Earth Continuity
- Riso
- HV AC
- Leaks & Power
AUTO PRINT
START

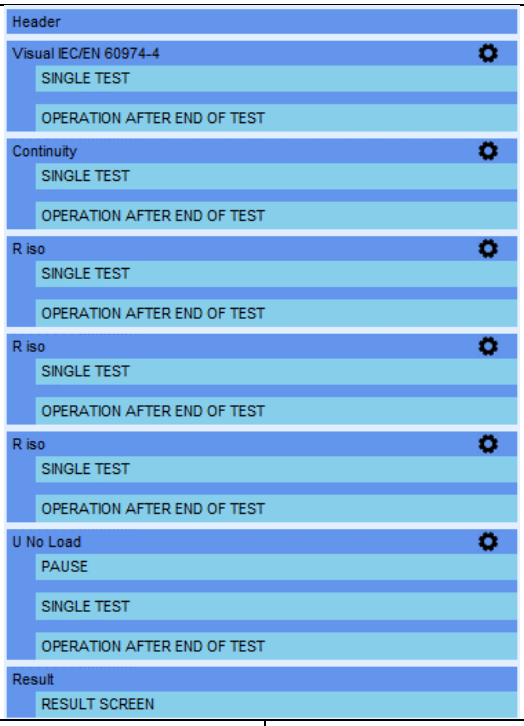
5.7. How to enable A 1422 Active 3-phase adapter for testing of, Arc / Welding equipment

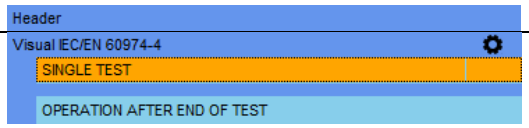
MultiServicerXD in combination with A 1422 enables testing of single and three phase welding equipment. The following example describes the testing of a 1-phase, Class I. (d.c. output) welding device, the following tests will be performed:
I. Earth continuity
II. Insulation resistance (Supply circuit to protective circuit), “LN-PE”
III. Insulation resistance (welding circuit to protective circuit), “W-PE”
IV. Insulation resistance (supply circuit to welding circuit), “LN-W”
V. No-load voltage

In the following steps it will be shown:

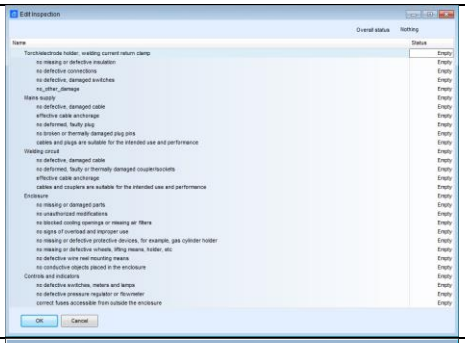
- How to establish connection between MI 3325 and A 1422 to enable Arc/Welding tests
- How to eable and execute Visual inpections
- Execution of Insulation resistance test (Riso “LN-PE”)
- Execution of Insulation resistance test (Riso “W-PE”)
- Execution of Insulation resistance test (Riso ““LN-W”)
- Use of flow command >PAUSE<
- Execution of No-load volatege (U No-load)
- How t manually save results into Memory Organizer

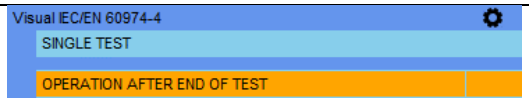


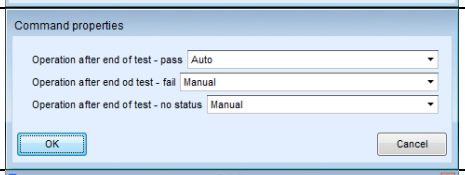

Header
Visual IEC/EN 60974-4
SINGLE TEST
OPERATION AFTER END OF TEST
Continuity
SINGLE TEST
OPERATION AFTER END OF TEST
R iso
SINGLE TEST
OPERATION AFTER END OF TEST
R iso
SINGLE TEST
OPERATION AFTER END OF TEST
R iso
SINGLE TEST
OPERATION AFTER END OF TEST
U No Load
PAUSE
SINGLE TEST
OPERATION AFTER END OF TEST
Result
RESULT SCREEN

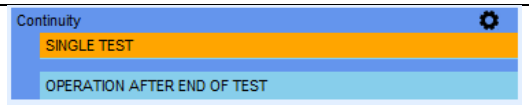

Header
Visual IEC/EN 60974-4
SINGLE TEST
OPERATION AFTER END OF TEST

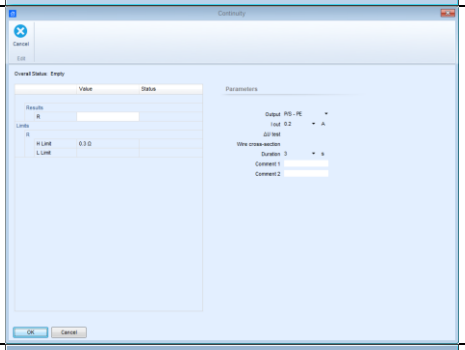
EMPTY

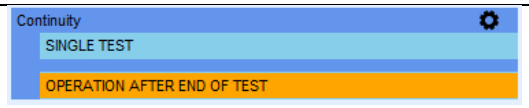


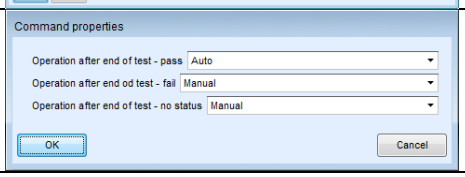

Visual IEC/EN 60974-4
SINGLE TEST
OPERATION AFTER END OF TEST

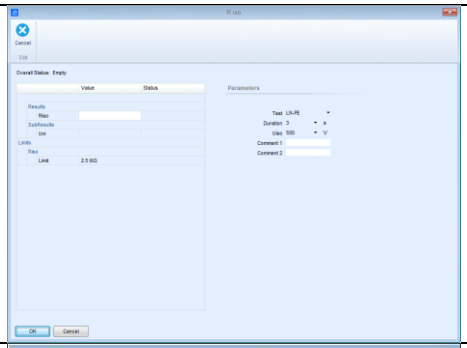
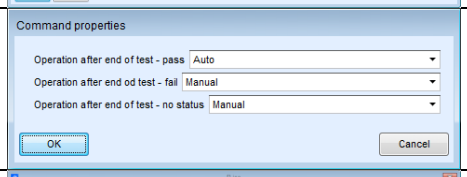
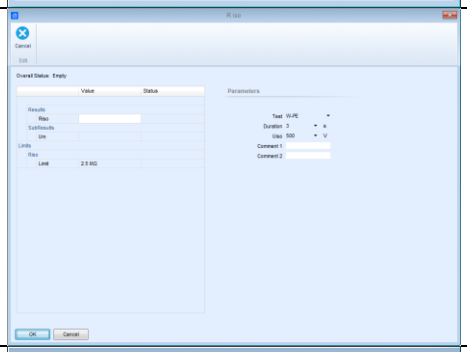
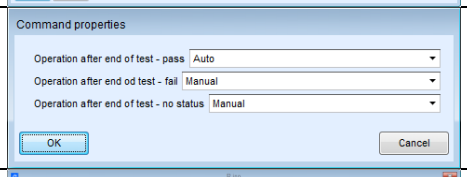
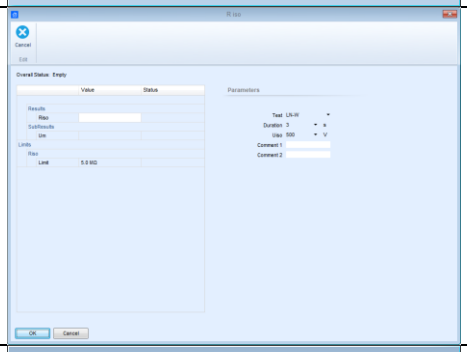
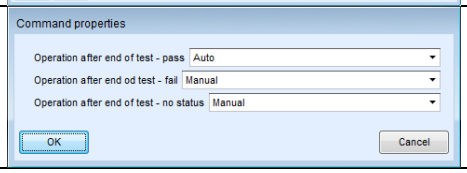

Command properties
Operation after end of test - pass
Auto
Operation after end od test - fail
Manual
Operation after end of test - no status
Manual
OK
Cancel


Continuity
SINGLE TEST
OPERATION AFTER END OF TEST




Continuity
SINGLE TEST
OPERATION AFTER END OF TEST


Command properties
Operation after end of test - pass
Auto
Operation after end od test - fail
Manual
Operation after end of test - no status
Manual
OK
Cancel

R iso SINGLE TEST OPERATION AFTER END OF TEST	
R iso SINGLE TEST OPERATION AFTER END OF TEST	
R iso SINGLE TEST OPERATION AFTER END OF TEST	
R iso SINGLE TEST OPERATION AFTER END OF TEST	
R iso SINGLE TEST OPERATION AFTER END OF TEST	
R iso SINGLE TEST OPERATION AFTER END OF TEST	

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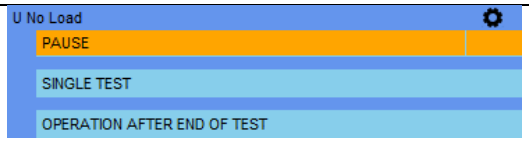
<td> 
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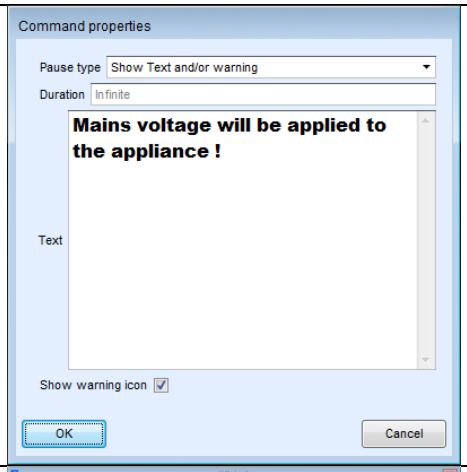
<td> 
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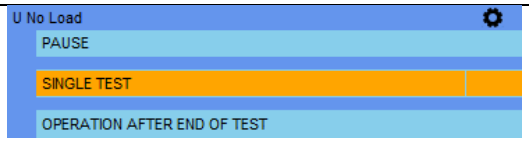
<td> 
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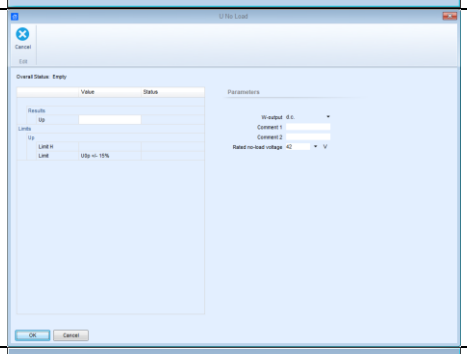
<td>  </td>
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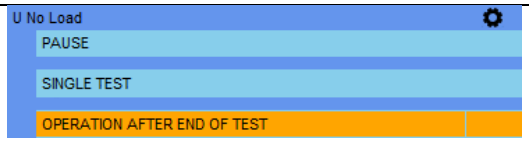
<td> 
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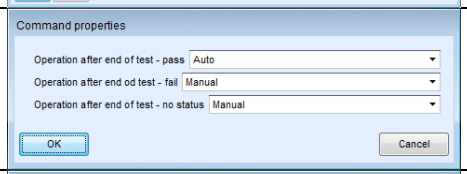
<td> 
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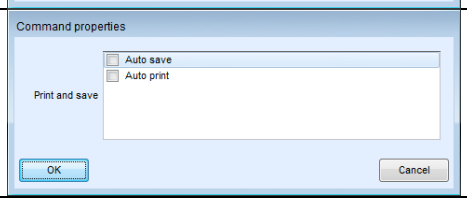
<td> 
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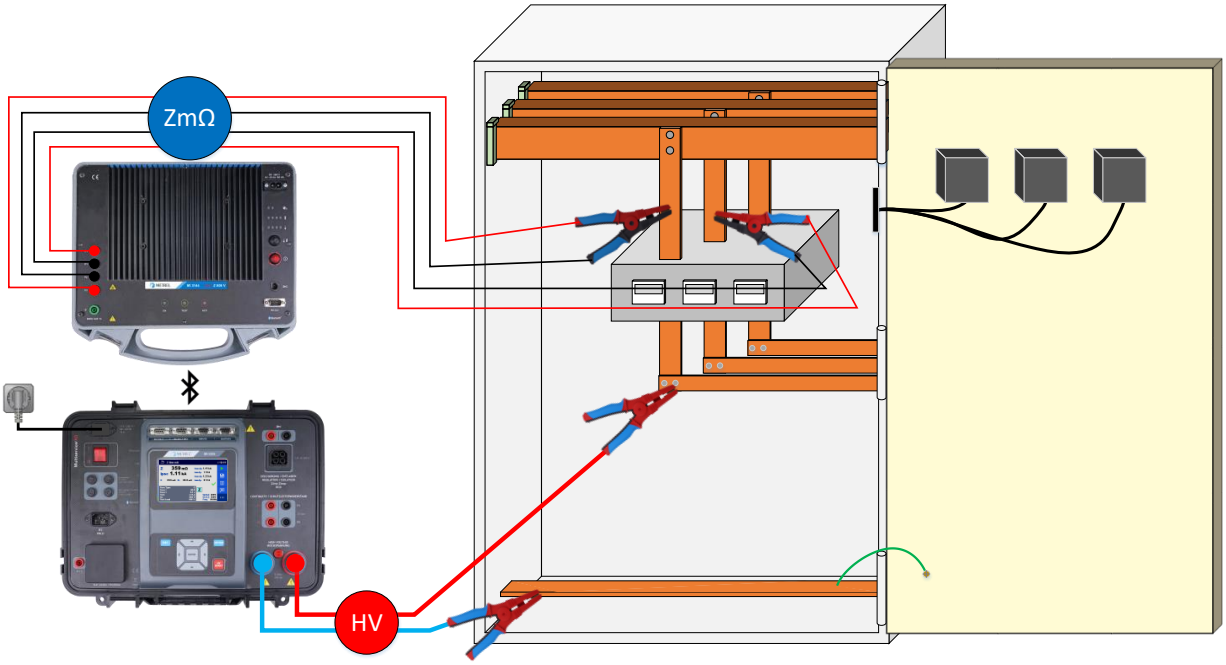
Auto Sequences®
09:33
EB-1, R-iso, A 1511
EB-1, HV AC
EB-1, Scans, Print
EB-1, HV, R-iso
EB-1, HV, R-iso, A 1460
MI 3325 + A 1422_Welding
Inspection
08:05
Visual IEC/EN 60974-4
Torch/electrode holder, welding current return clamp
no missing or defective insulation
no defective connections
no defective, damaged switches
no_other_damage
Continuity
08:52
R 0.00 Ω
R iso
11:12
Riso>199.9 MΩ
Um 525 V
R iso
11:12
Riso>199.9 MΩ
Um 525 V
R iso
11:12
Riso>199.9 MΩ
Um 525 V
MI 3325 + A 1422_Welding
09:59
Mains voltage will be applied to the appliance !
U No Load
10:05
Up V
Ready
U No Load
11:12
Up 42.5 V
Memory 1:1: CI_1_Iso_risc_env
11:06
Memory Organizer
11:58
Workspace001
Node
Add New
10:04
Project
Create
Project
Element type
09:47
Welding equip. FD
Machine
Switchgear
EVSE
Node
Add New
12:00
Welding equip. FD
Create
Appliance ID
66554.888
Inventory No.
0012
Name
Welding device
Memory Organizer
12:01
Workspace001
Node
66554.888
Memory Organizer
12:04
Node : Project
Workspace001
Node
Project
0001
CI_1_Iso_risc_env

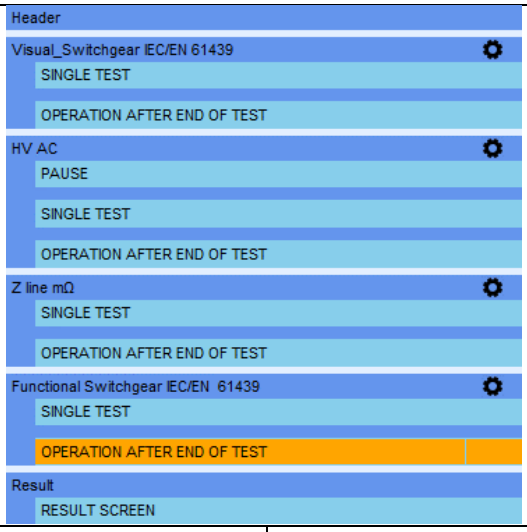
5.8. How to measure low impedance (mΩ)

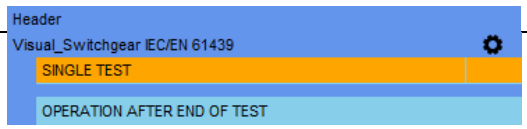
Switchboards are typical devices where many safety measurements are performed, including high voltage (HV) measurement and impedance (Z) measurement in the mΩ range. High precision line and fault loop impedance measurements are performed using high current impulses to assure adequate voltage drop during the test.
The following example will show how to execute high voltage measurement using MI 3325 and an impedance measurement in mΩ range using MI 3325 + MI 3144. Communication between test instruments will be established via Bluetooth.

In the following steps it will be shown:

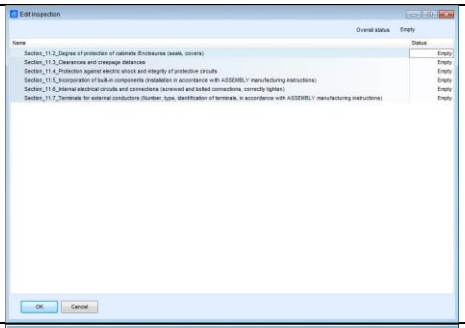
- How to establish bluetooth communication between MI 3325 and MI 3144
- How to eable and execute Visual inpections
- Use of flow command >PAUSE<
- Execution of High voltage test (HV)
- Execution of Line Impedance test in mΩ range (Z mΩ)
- How t manually save results into Memory Organizer

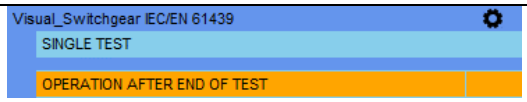


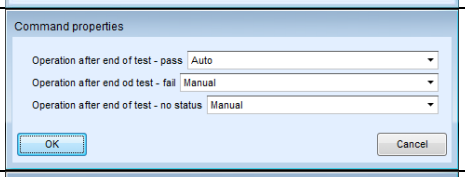

Header
Visual_Switchgear IEC/EN 61439
SINGLE TEST
OPERATION AFTER END OF TEST
HV AC
PAUSE
SINGLE TEST
OPERATION AFTER END OF TEST
Z line mΩ
SINGLE TEST
OPERATION AFTER END OF TEST
Functional Switchgear IEC/EN 61439
SINGLE TEST
OPERATION AFTER END OF TEST
Result
RESULT SCREEN

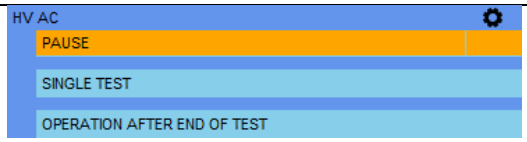

Header
Visual_Switchgear IEC/EN 61439
SINGLE TEST
OPERATION AFTER END OF TEST

EMPTY

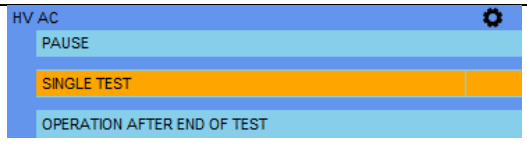


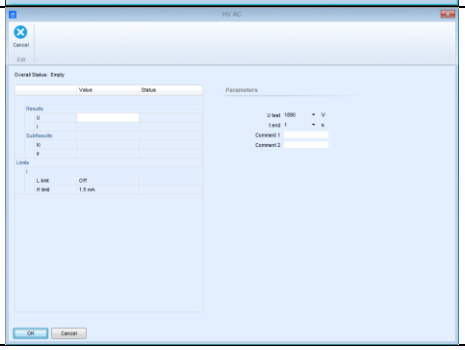

Visual_Switchgear IEC/EN 61439
SINGLE TEST
OPERATION AFTER END OF TEST

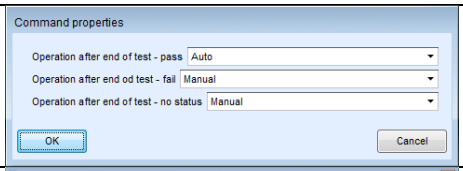
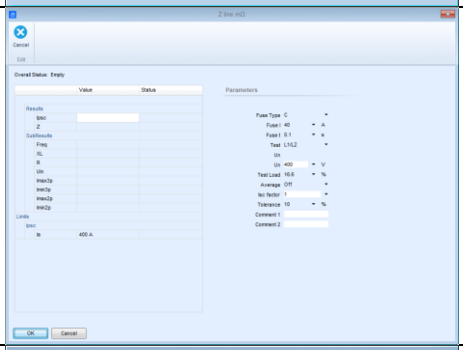
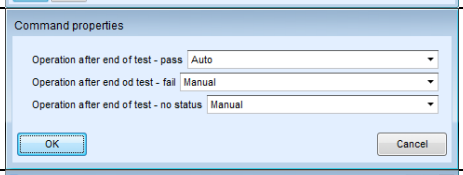
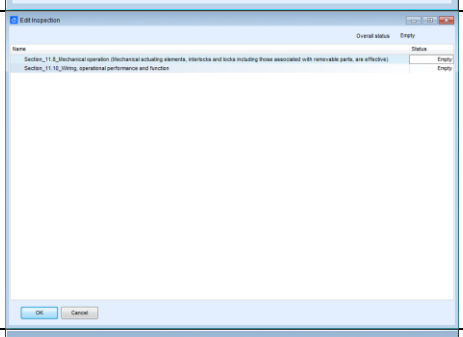
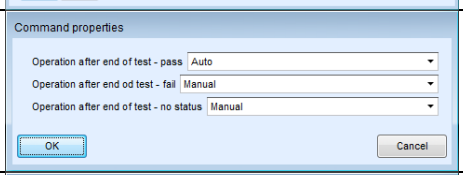
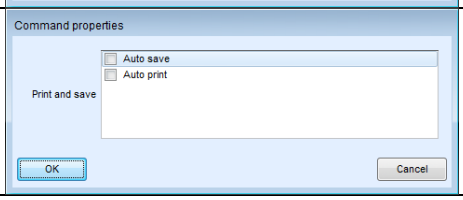

Command properties
Operation after end of test - pass
Auto
Operation after end od test - fail
Manual
Operation after end of test - no status
Manual
OK
Cancel


HV AC
PAUSE
SINGLE TEST
OPERATION AFTER END OF TEST

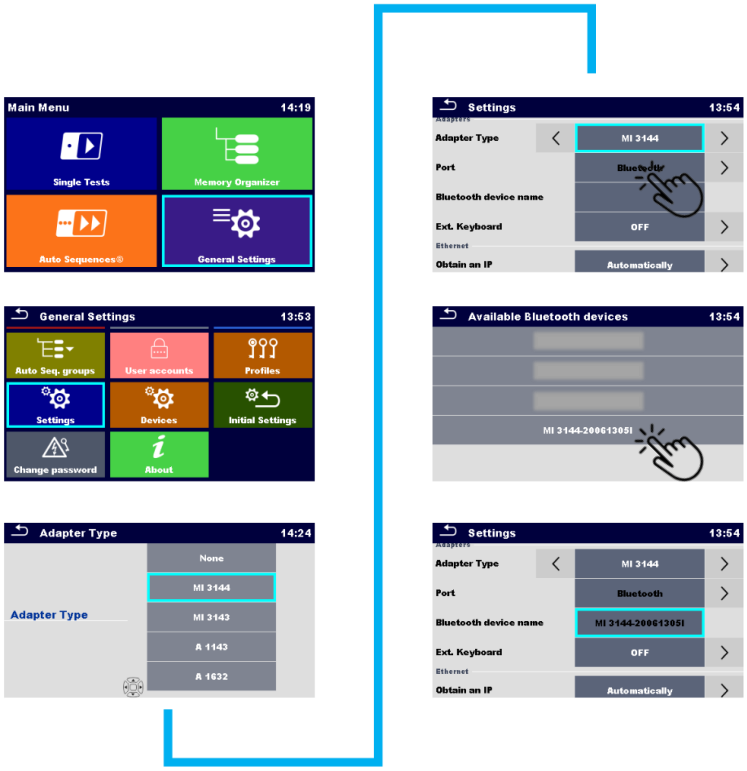
Command properties
Pause type
Show Text and/or warning
Duration
Infinite
NEXT TEST HV TEST!!!
DANGEROUS VOLTAGE!!!
Text
Show warning icon
OK
Cancel

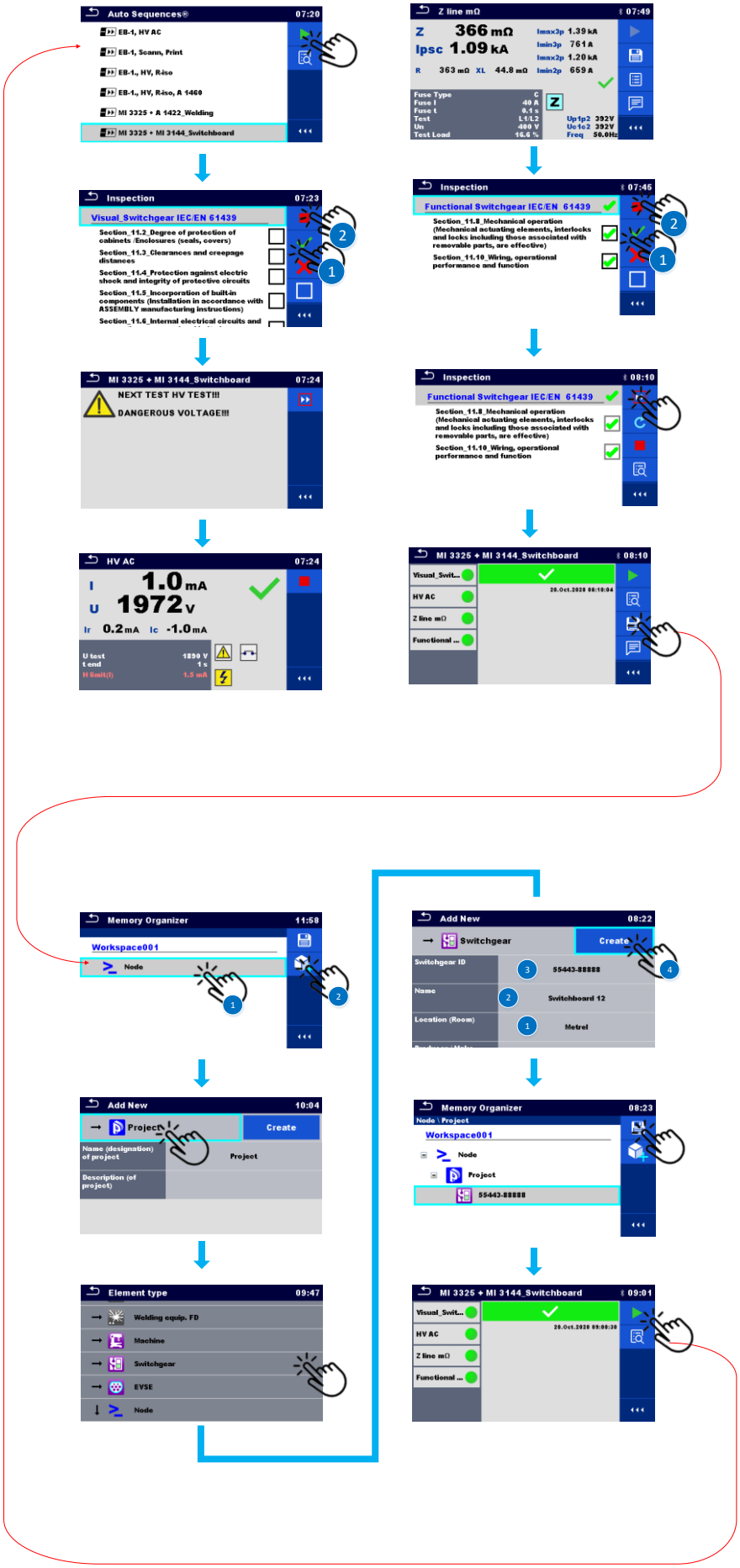

HV AC
PAUSE
SINGLE TEST
OPERATION AFTER END OF TEST



HV AC PAUSE SINGLE TEST OPERATION AFTER END OF TEST	
Z line mΩ SINGLE TEST OPERATION AFTER END OF TEST	
Z line mΩ SINGLE TEST OPERATION AFTER END OF TEST	
Functional Switchgear IEC/EN 61439 SINGLE TEST OPERATION AFTER END OF TEST	
Functional Switchgear IEC/EN 61439 SINGLE TEST OPERATION AFTER END OF TEST	
Result RESULT SCREEN	

Before performing the measurement, it is necessary to establish communication (wireless or wired) between MI 3325 MultiServicerXD and MI 3144 Euro Z 800V. This is done according to the following procedure.



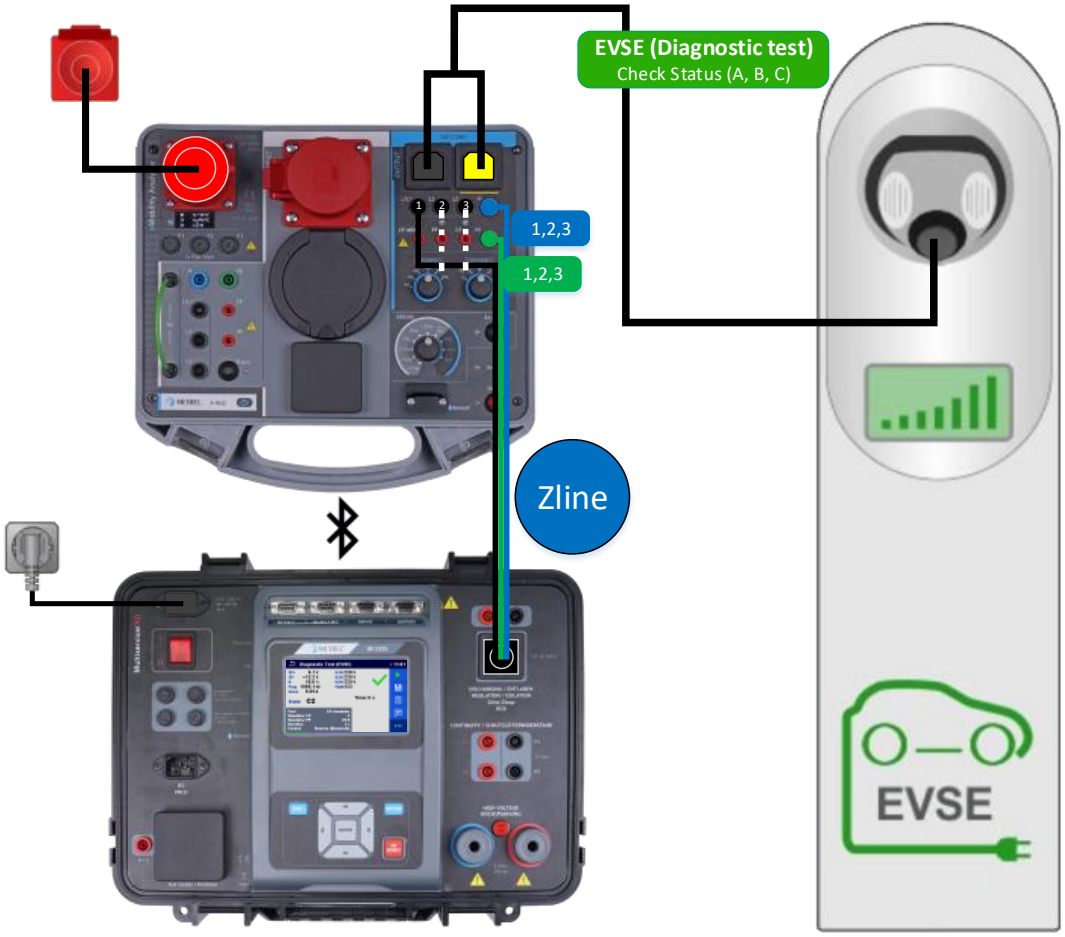

Auto Sequences®
EB-1, HV AC
EB-1, Scann, Print
EB-1., HV, R-iso
EB-1., HV, R-iso, A 1460
MI 3325 + A 1422_Welding
MI 3325 + MI 3144_Switchboard
Z line mΩ
Z 366 mΩ
Ipsc 1.09 kA
Inspection
Visual_Switchgear IEC/EN 61439
Functional Switchgear IEC/EN 61439
MI 3325 + MI 3144_Switchboard
NEXT TEST HV TEST!!!
DANGEROUS VOLTAGE!!!
HV AC
I 1.0 mA
U 1972 V
Memory Organizer
Workspace001
Node
Add New
Switchgear
Create
Switchgear ID
Name
Location (Room)
Switchboard 12
Metrel
Project
Name (designation) of project
Description (of project)
Element type
Welding equip. FD
Machine
Switchgear
EVSE
Node

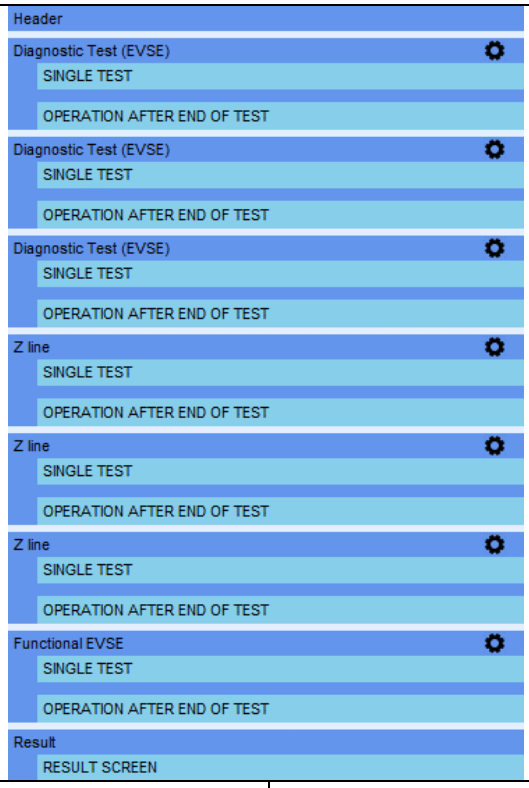
5.9. How to do a diagnostic test on a (EVSE) charging station

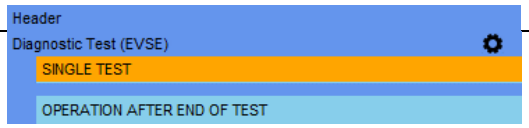
One other application covered by MultiServicerXD is the verification of (EVSE) charging stations. To perform the tests on the (EVSE) station, it is necessary to use the optional adapter (A 1632, eMobility Analyzer), which allows us to establish the appropriate states of the (EVSE) station, to enable execution of safety and diagnostic tests on the charging station.
In the following example, two measurements will be shown:
- (EVSE) station diagnostic test,
- line impedance measurement.

In the following steps it will be shown:

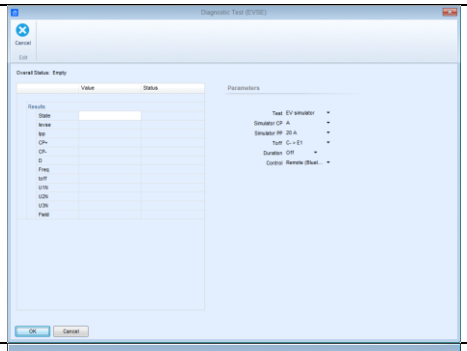
- How to establish bluetooth communication between MI 3325 and A 1632
- How to connect instrument and adapter for execution of impedance test
- Execution of Disagnostic test (Simulation of state A)
- Execution of Disagnostic test (Simulation of state B)
- Execution of Disagnostic test (Simulation of state C)
- Execution of Impedance test (Zline “L1-N”)
- Execution of Impedance test (Zline “L2-N”)
- Execution of Impedance test (Zline “L3-N”)
- Execution of Functional inspection (Functional EVSE)
- How t manually save results into Memory Organizer

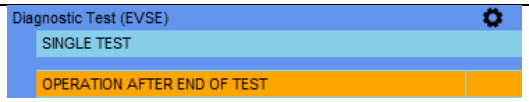


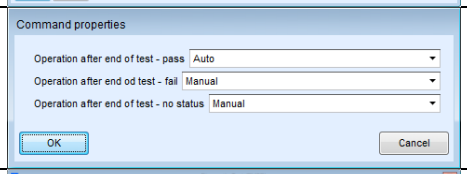

Header
Diagnostic Test (EVSE)
SINGLE TEST
OPERATION AFTER END OF TEST
Diagnostic Test (EVSE)
SINGLE TEST
OPERATION AFTER END OF TEST
Diagnostic Test (EVSE)
SINGLE TEST
OPERATION AFTER END OF TEST
Z line
SINGLE TEST
OPERATION AFTER END OF TEST
Z line
SINGLE TEST
OPERATION AFTER END OF TEST
Z line
SINGLE TEST
OPERATION AFTER END OF TEST
Functional EVSE
SINGLE TEST
OPERATION AFTER END OF TEST
Result
RESULT SCREEN

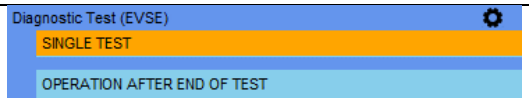

Header
Diagnostic Test (EVSE)
SINGLE TEST
OPERATION AFTER END OF TEST

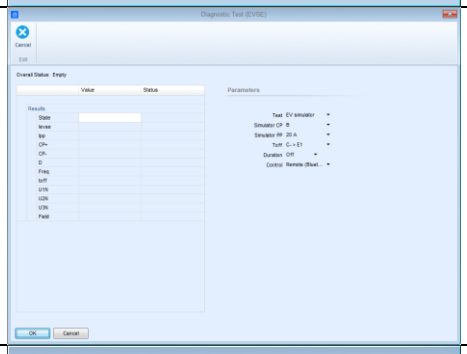
EMPTY

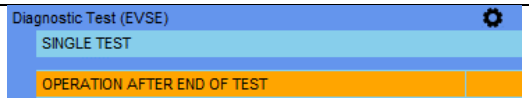


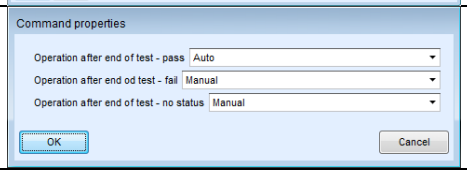

Diagnostic Test (EVSE)
SINGLE TEST
OPERATION AFTER END OF TEST

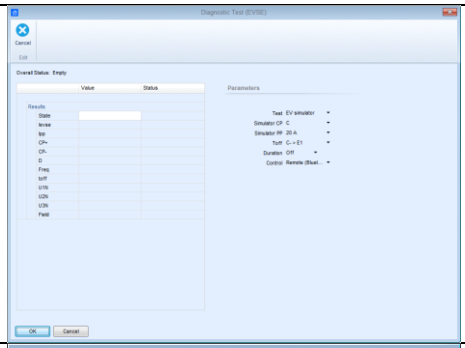
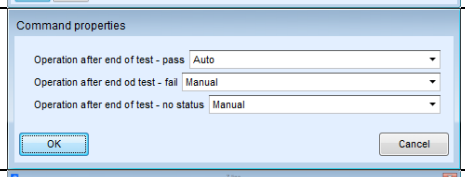
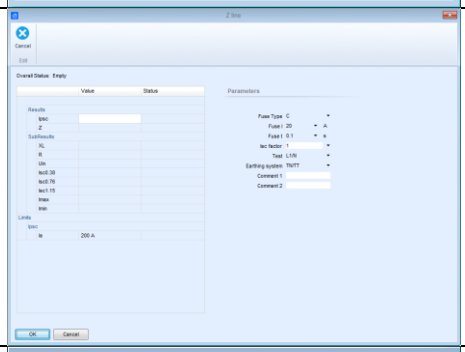
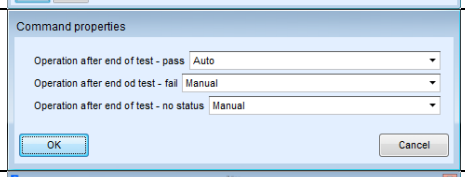
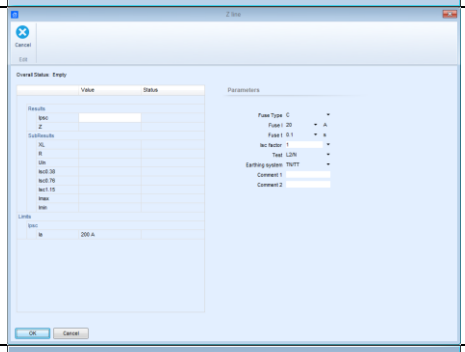
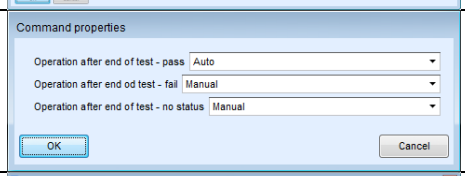
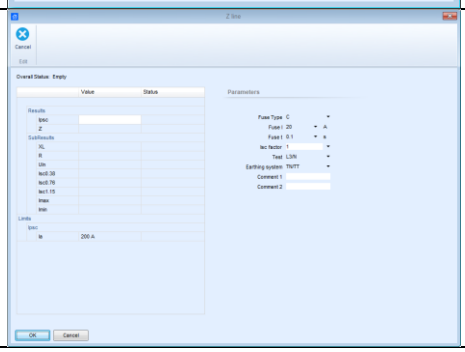

Command properties
Operation after end of test - pass
Auto
Operation after end od test - fail
Manual
Operation after end of test - no status
Manual
OK
Cancel

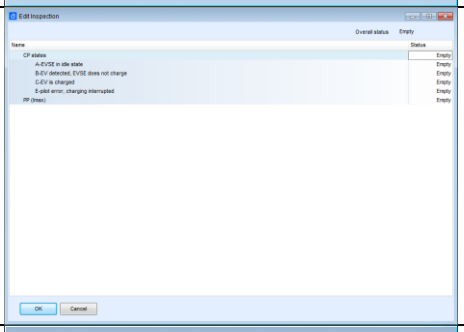

Diagnostic Test (EVSE)
SINGLE TEST
OPERATION AFTER END OF TEST



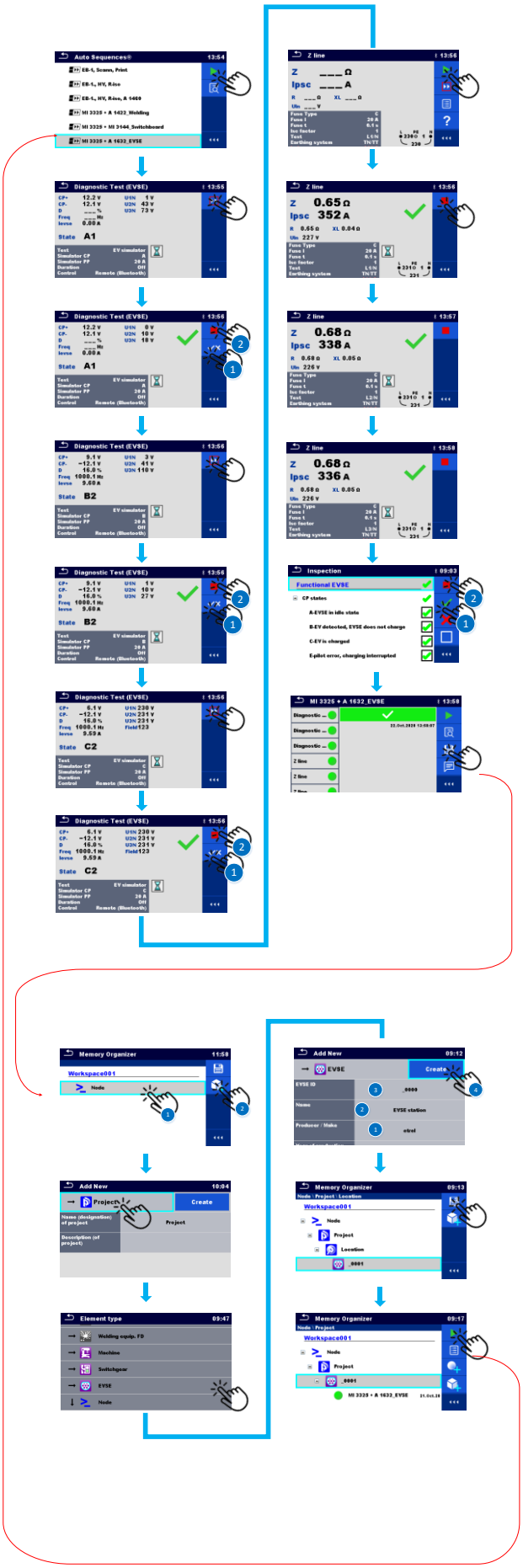

Diagnostic Test (EVSE)
SINGLE TEST
OPERATION AFTER END OF TEST


Command properties
Operation after end of test - pass
Auto
Operation after end od test - fail
Manual
Operation after end of test - no status
Manual
OK
Cancel

Diagnostic Test (EVSE) SINGLE TEST OPERATION AFTER END OF TEST	
Diagnostic Test (EVSE) SINGLE TEST OPERATION AFTER END OF TEST	
Z line SINGLE TEST OPERATION AFTER END OF TEST	
Z line SINGLE TEST OPERATION AFTER END OF TEST	
Z line SINGLE TEST OPERATION AFTER END OF TEST	
Z line SINGLE TEST OPERATION AFTER END OF TEST	
Z line SINGLE TEST OPERATION AFTER END OF TEST	

Z line SINGLE TEST OPERATION AFTER END OF TEST	Command properties Operation after end of test - pass: Auto Operation after end od test - fail: Manual Operation after end of test - no status: Manual OK / Cancel
Functional EVSE SINGLE TEST OPERATION AFTER END OF TEST	
Functional EVSE SINGLE TEST OPERATION AFTER END OF TEST	Command properties Operation after end of test - pass: Auto Operation after end od test - fail: Manual Operation after end of test - no status: Manual OK / Cancel
Result RESULT SCREEN	Command properties Auto save Auto print Print and save OK / Cancel

Before performing the measurement, it is necessary to establish wireless communication between MI 3325 MultiServicerXD and A 1632 eMobility Analyser. This is done according to the following procedure.


Auto Sequences®
Diagnostic Test (EVSE)
State A1
State B2
State C2
Z line
Inspection
Functional EVSE
MI 3325 + A 1632_EVSE
Memory Organizer
Workspace001
Add New
Create
Element type

6. Demo test sequence

Demo test sequences are available from the following link.

https://www.metrel.si/assets/Metrel/PS_SW_dokumentacija/Autosequence/MetrelAutoSeq_MI 3325.zip

Hersteller:

METREL®

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