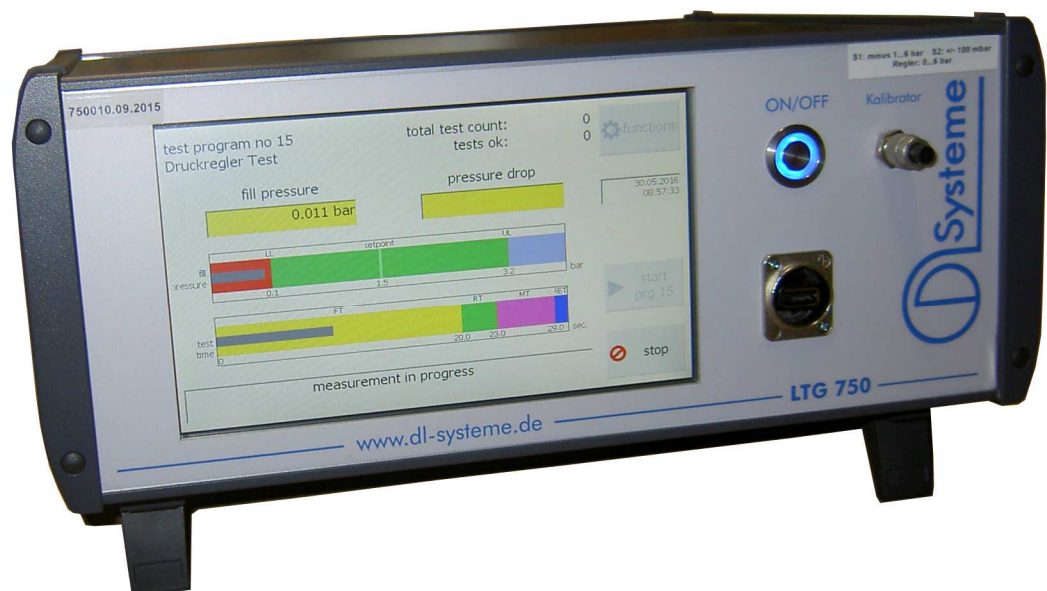


Instructions for use

LTG 750



Leakage tester LTG 750

Instructions for use

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In the instructions for use given below, the left column shows the visible windows in original size and describes their functions. The column on the right shows the instructions for use / explanations for the view shown on the left.

Leakage tester LTG 750

Instructions for use

Switch on

The leakage tester is switched on with the On/Off button. The switch engages in the On position and the diode glows in blue when the 24 V DC operating voltage is available.

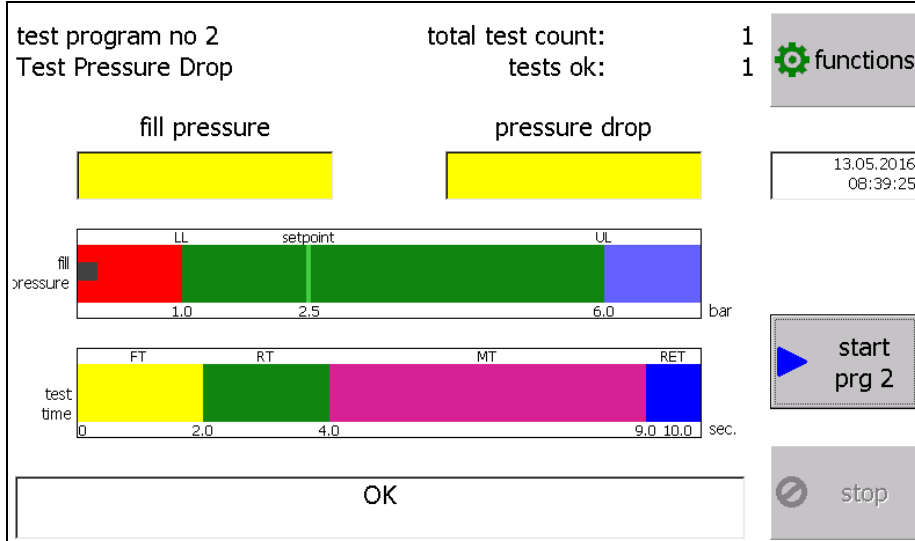
The following is shown on the display one by one upon start:

- at first white display approx. 5s
- Windows interface approx. 15 s
- Logo DL systems approx. 5s
- Operational view

The display

The display is a resistive touch-screen display. Inputs can be made by lightly tapping with the finger or with a plastic stylus on the surface. Although the surface is made of scratch-resistant glass, input helps like a ball pen or other metallic objects are to be avoided. No input is necessary at the display for operating the test sequences.

The operational view



The view is divided in five areas from top to bottom.

- Specifications for testing

- Measured value display and date / time

- Bar graph display of the results of measurement and testing

- Bar graph display of the test sequence

- Message window

Leakage tester LTG 750

Instructions for use

Specifications for testing

The specifications for testing with the selected test programme and the related test number are shown in the upper grey field. In the middle the conducted tests are shown, which have been carried out after selecting the test programme. In addition, also the number of tests which were I.O. (in order). With the button "Function pre-selection" one reaches at first the level of password entry and then goes further to the level for programme selection and for creating a test programme.

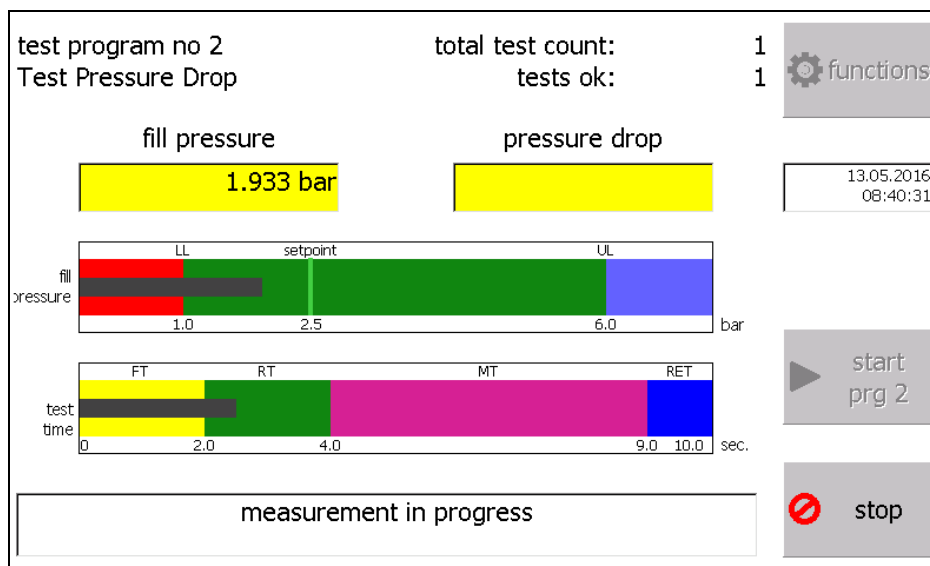
Measured value display

In the two display fields given in yellow, the fill pressure is always shown on the left. The dependency of the test method appears in the right display:

- the pressure drop during the pressure drop method
- the differential pressure in the differential pressure method
- the flow in the flow method

respectively in the defined unit. The fill pressure is always shown. The differential pressure or the flow is shown only when the rest period starts. In case of an error message, the displays continue to be shown till the error message is corrected using the stop or the start button.

Bar diagram of the measurement and test results



In the time from start till measurement, a bar graph display appears in the middle of the view, in which the fill pressure is shown as a grey bar. The green area is the permissible defined area. The light-green marking shows the reference value of the fill pressure.

Leakage tester LTG 750

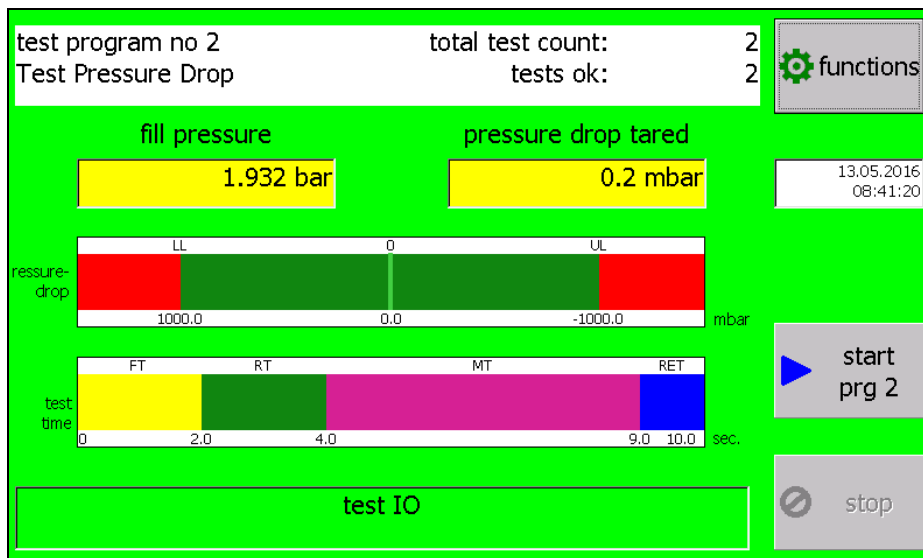
Instructions for use

Bar graph display of the test sequence

In the lower bar "test time", the individual test phases are shown through coloured fields. Their meaning is as follows:

- LDZ Load time turquoise
- FZ Filling time yellow
- RZ Rest period green
- MZ Measurement time magenta
- LZ Ventilation time blue

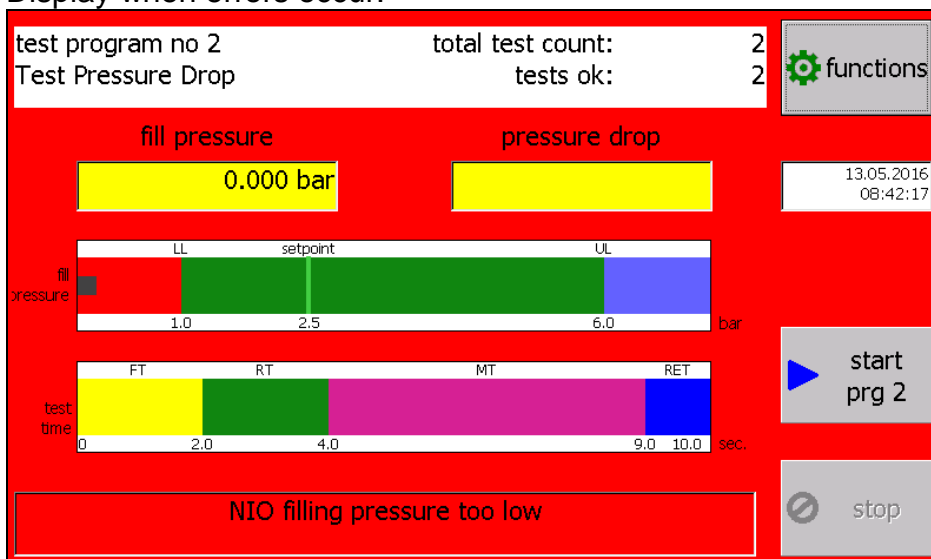
Within the areas, a grey progress bar runs from left to right after the start and shows the current test time.



If the test sequence is in the measurement period, the middle bar changes to a bar graph with display of the permissible area in green, the reference value in light-green and the deviation from reference value as the grey bar graph.

The clear text statement about the test is given in the message window below.

Display when errors occur:



Leakage tester LTG 750

Instructions for use

Message window

The statements for the test as well as the error messages are shown in the lower yellow window.

The colour of the message window changes to green in case of OK message and to red in case of NOK message.

Start of test sequence

The start of the test sequence is done exclusively via the Start button. A test, which is OK, is shown with a screen in green.

Stopping the test sequence

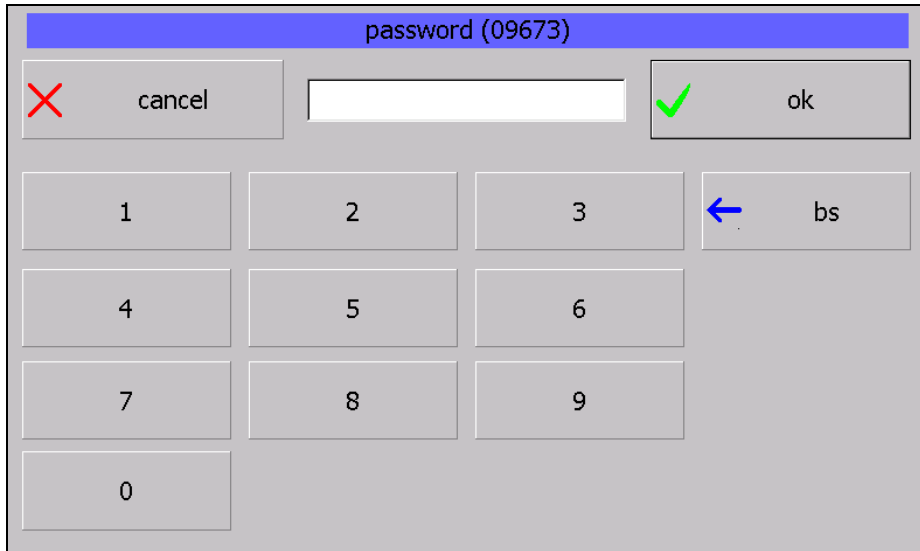
The test sequence can be terminated at any time with the Stop button. A termination, an NOK message and an error message are shown with a screen in red.

Leakage tester LTG 750

Instructions for use

Select, define test programme and other settings

The button "Setup" is visible at the end or before a test sequence. Tapping this button leads one to the password query.



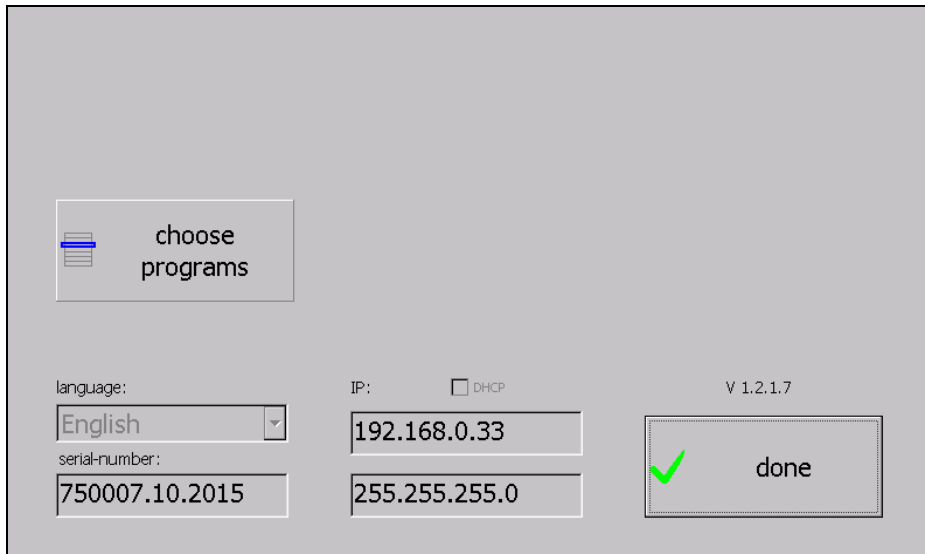
The password is a three-digit number. The password is 770 for the operator.

An input can be deleted character by character with the Delete button (backspace key = BS)

The OK button can also be activated by pressing the return button.

The password hierarchy differentiates between:
Operator and responsible person for the test programmes,
e.g. foreman, setter, service.

Other functions are released and shown using other passwords.



One reaches the function selection after entering the correct password. Functions that are inaccessible are not shown.

Only the button "Select programme" is accessible to the operator.

Following are shown here:

- the button for programme selection
- the selected language
- the serial number of the device
- the IP settings: DHCP, IP address and subnet mask
- Button "Finish" for ending the dialogue

Leakage tester LTG 750

Instructions for use

The persons responsible for the programmes have here an extended selection

By entering the foreman password 550, one gets the following selection.

Following are shown here:

- the button for Edit programmes
- the button for programme selection
- the selected language (can now be selected)
- the serial number of the device
- the IP settings: DHCP, IP address and subnet mask
- Button Expert Page (set date, time, IP settings)
- Button "Finish" for ending the dialogue

Select test programme

After pressing the button "Select test programme", the dialogue given alongside is shown with the activated test programmes.

The programmes can be tapped = selected.

The selected programme is shown on the right side with the test settings. Apply with the button "Finish".

Leakage tester LTG 750

Instructions for use

Redefine or edit test programme

The screenshot shows a software interface for configuring a test program. It features a list of programs on the left, a central panel for setting measurement methods, times, and test parameters, and a right panel for board outputs and activation. The 'Test Pressure' program is currently selected.

All the available programmes are shown on the left side. Unlike during selection, where only the active programmes are present.

Upon tapping the programme (if needed, scroll down with the bar directly near the programme list), the programme parameters are shown.

Via the list of name of the currently selected programme.

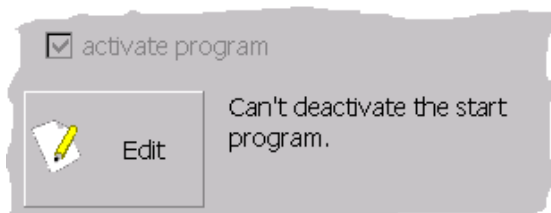
In the middle column, the measurement method, the subsequent programme, the measuring times and the test settings.

In the right column, the settings of outputs for the additional board, if available.

The setting of the standard outputs and the selection, whether the programme should be active (only then it is shown in the programme selection).

If a programme may be used by another one as the subsequent programme, it may not be deactivated.

A message appears and the checkbox is deactivated.



At the same time, one gets a message, in which programmes is the currently selected one referenced.

Buttons on the page:

- Edit: Active only when a field is selected, which permits an input
- Save programme: The changes are stored under the programme name
- Programme Import Export: Activated, if a USB stick having the format exFat is inserted.
- Finish: Exiting the dialogue

Leakage tester LTG 750

Instructions for use

Inputs for a test sequence programme

Activate programme

A test sequence programme can be activated or deactivated. Only the activated test programmes appear in the selection list.

Test specimen

A name or an identification number of the specimen can be entered here. The name appears in the selection list, above in the display and in the test log.

Measurement method

Depending upon the device type, the measurement method: Pressure drop, minimum pressure drop, differential pressure or flow can be selected here. Only the permissible methods are shown.

Next test

A next test programme for a subsequent testing can be selected here. This is carried out only when the current programme has been conducted as OK.

Time values of the test sequence programme

Inputs are made in seconds for: Load time, fill time, rest period, measurement time and ventilation time. The keyboard is changed for the numeric input.

Fill pressure inputs

Subsequently, the inputs are made for min. and max. fill pressure. These are monitored and determine the green area in the graph. The input of fill pressure defines the reference value, the light-green line in the graph as starting point for the bar graphs.

Measurement tolerance

Thereafter, the measurement tolerance is entered depending upon the test method.

Pressure drop:	max. pressure drop and maximum pressure increase
Minimum pressure drop	maximum pressure drop and maximum pressure increase
Differential pressure:	positive and negative differential pressure
	The value input is always positive here.
Flow method:	max. flow

The measurement tolerance determines the green tolerance field and is monitored.

Leakage tester LTG 750

Instructions for use

Inputs

If a field is selected for input, the button "Edit" becomes activated.
Upon pressing this button, a dialogue appears for entering the parameters. A description, which parameters are to be entered, is given in the upper row.
The display of the dialogue depends upon upon the fact whether it is a numeric or an alphanumeric input.

e.g. programme name:

The dialog box has a yellow title bar labeled "program". It contains a text input field with "Test Pressure Drop" entered. To the left is a button with a red 'X' and the text "Abbrechen". To the right is a button with a green checkmark and the text "OK". Below the input field is a numeric keypad (0-9) with a blue arrow and "BS" to the right. Below that is a row of letters: q, w, e, r, t, z, u, i, o, p. Below that is a row of letters: a, s, d, f, g, h, j, k, l. Below that is a row of letters: y, x, c, v, b, n, m, ., -, +. At the bottom left is a button with an upward arrow. At the bottom center is an empty text input field.

All other fields (time and pressure values) as follows:

The dialog box has a yellow title bar labeled "filling time FT [s]:". It contains a text input field with "2.0" entered. To the left is a button with a red 'X' and the text "cancel". To the right is a button with a green checkmark and the text "ok". Below the input field is a numeric keypad (0-9) with a blue arrow and "bs" to the right. Below that is a row of letters: 4, 5, 6. Below that is a row of letters: 7, 8, 9. Below that is a row of letters: 0, .

Leakage tester LTG 750

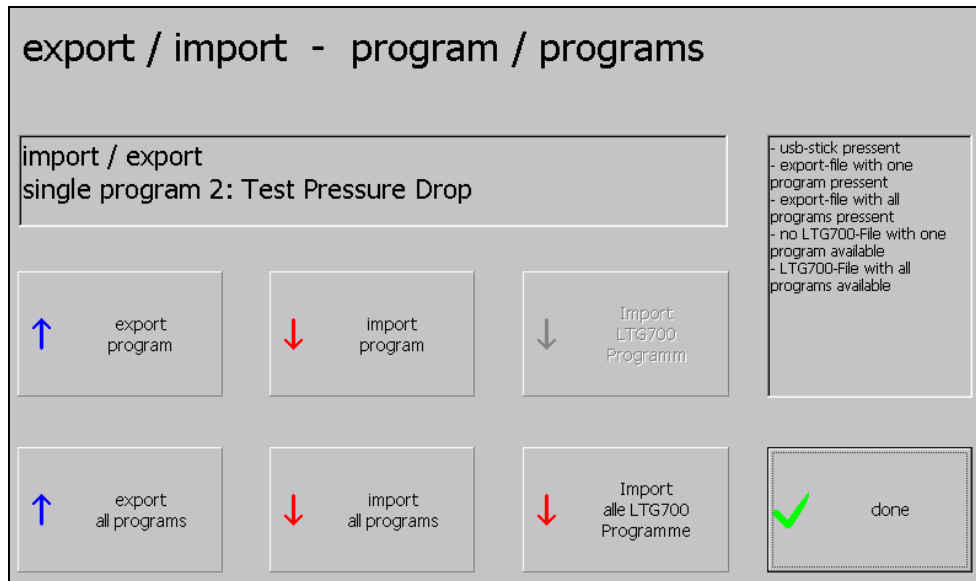
Instructions for use

Import Export programmes

In order to simplify the data transfer to another device, or to save the settings, it is possible to export and import the programmes.

The button is activated only when a USB stick having the exFat format is inserted in the USB slot.

The following dialogue appears upon pressing the button "Import Export Programme".



The buttons have the following functions:

- Export programme: Exports the selected programme (the one from the dialogue Edit programme) to the stick. This programme is also shown in the field above the buttons.
- Export all programmes: All 255 programmes are exported to the stick.
- Import programme: The button is activated only when a programme for importing is present on the stick. This programme on the stick replaces the programme, which is shown in the field via the buttons.
- Import all programmes: The button is activated only when a file with all programmes for importing is present on the stick.

All buttons are deactivated when the stick is removed.

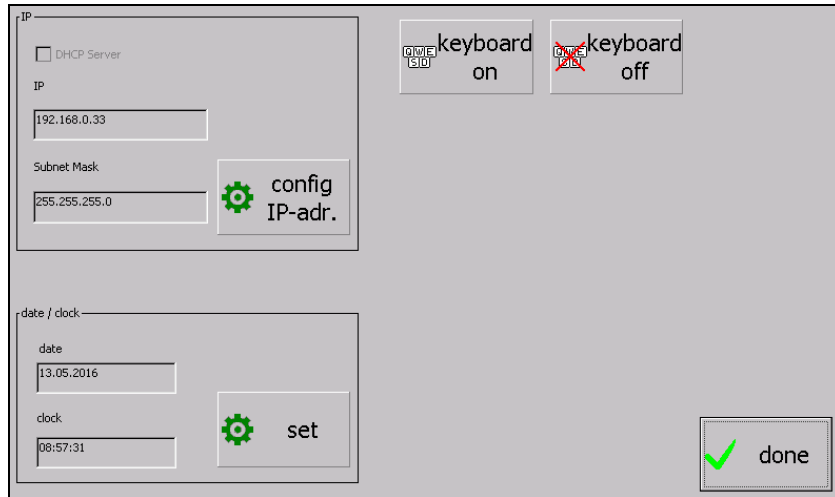
The states that are available and the actions executed appear in the output field on the right.

Leakage tester LTG 750

Instructions for use

The Expert Page

The expert page is needed for setting the date or the time and for setting the IP address.

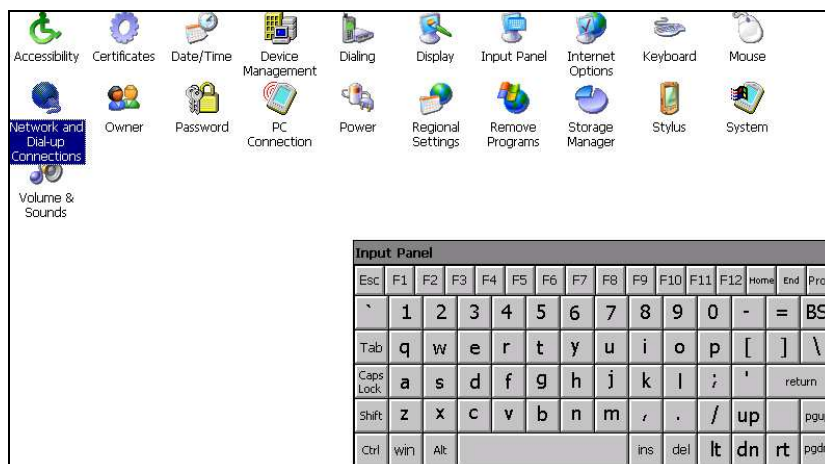


The buttons have the following functions:

- Set IP address: The control panel is opened for setting the IP address. Exact description is given below
- Set: Dialogue for setting date and time is opened
Description given further below
- Keyboard on: The Windows keyboard is shown
- Keyboard off: The Windows keyboard is no longer shown
- Finish: The dialogue is ended

Set IP address

The control panel and the keyboard are opened when the button is pressed.

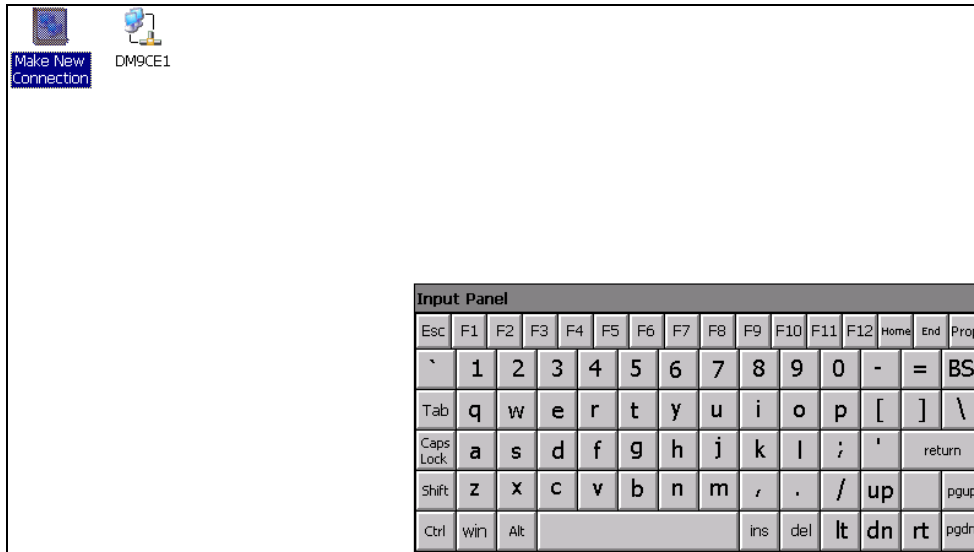


A double-click must be made here on "Network and Dial-up Connections". Alternatively, select and press "Return" on the keyboard.

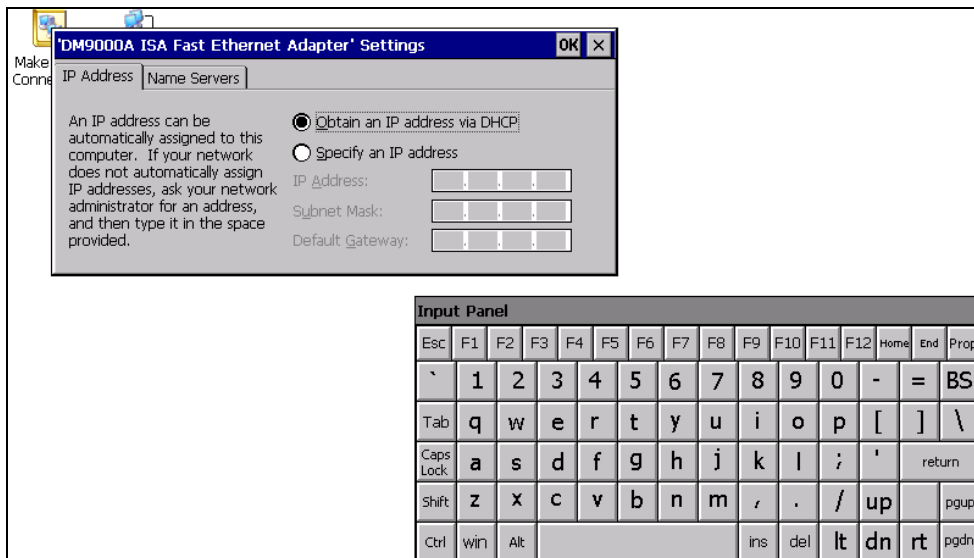
Leakage tester LTG 750

Instructions for use

Following view appears:



Select here "DM9CE1" and double-click or press "Return" on the keyboard.



This dialogue is half-hidden behind the keyboard. One can push it near the keyboard by dragging it at the blue bar above.

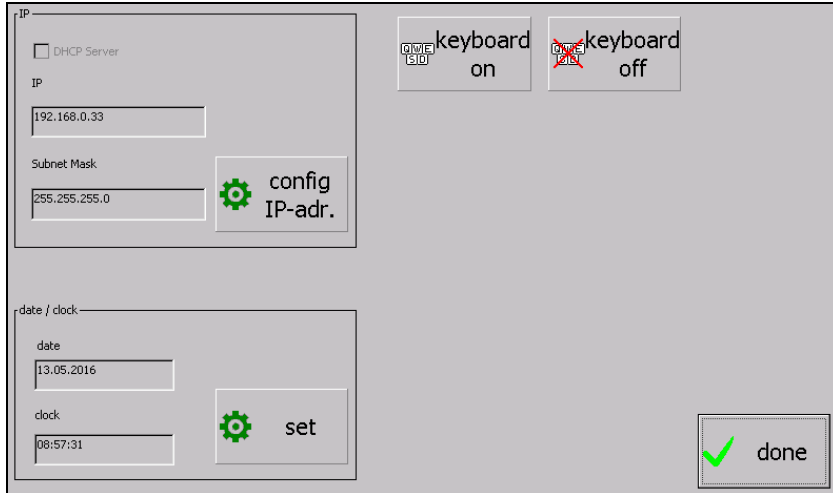
The settings for the IP address are to be made here.

Exit the dialogue after completion with "OK" (near the X). Close all other dialogues with X in the top right corner.

Leakage tester LTG 750

Instructions for use

One then reaches the Expert page again. But with the keyboard switched on.



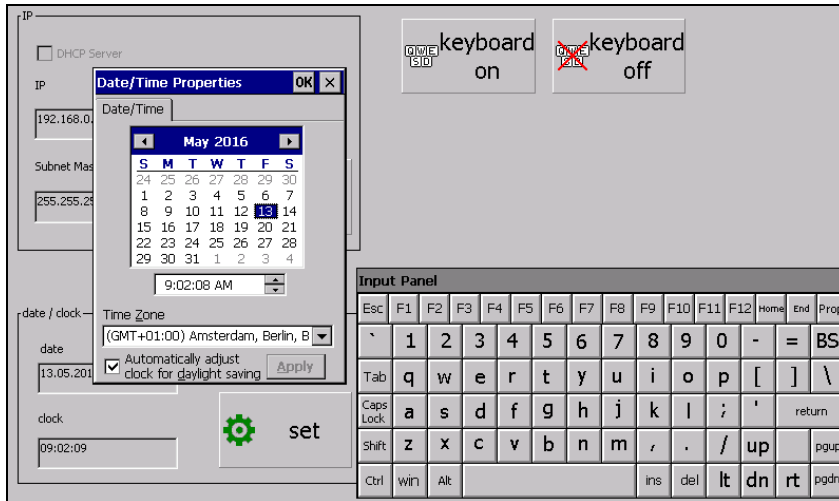
One can/must hide the keyboard again with the button "Keyboard off".

Leakage tester LTG 750

Instructions for use

Set date and time

Upon pressing the button "Set", the dialogue for setting the time and the keyboard are shown. The dialogue is hidden half below the keyboard and must be dragged in the free area with the blue bar in the Clock dialogue. Thereafter, one needs to switch on the keyboard again (button "Keyboard on")



The date, time and, if applicable, the time zone can be set now. Close the dialogue with "OK" near the X and switch off the keyboard again (button "Keyboard off")

Leakage tester LTG 750
Instructions for use

EC Declaration of conformity
As defined in the EC Guideline 89/336/EEC

It is hereby declared that the designated product:

Digital Meter LTG 750 (Electronic)

Device description:

Evaluation electronics for leakage check, set up in a table-top housing,
Supply voltage 230 V AC / 50 Hz. Mains supply cable max. 2.5 metres

with the serial number:

conforms to the EC Guideline "**Electromagnetic Compatibility**" **92/31/EEC**.

For evaluating the product with respect to electromagnetic compatibility, the following standards were referred:

DIN EN-50081-2 / DIN EN-50082-1

A prerequisite for adhering to this declaration is the proper use of the product, its proper connection to the low voltage network as well as the exclusive use of the external and internal components approved by the DL-Systeme für Messtechnik GmbH. This especially applies to measurement cables, power supply cables, sensors, control units, etc. The final manufacturer is responsible for the further intended use as well as for the adherence to the valid standards and guidelines.

This declaration is submitted responsible for the manufacturer:

DL-Systeme GmbH
Steinbeisstraße 32
73614 Schorndorf
Tel. 07181/77950

by: Dietmar Lehle

Schorndorf,.....
Date

.....
Dietmar Lehle

Leakage tester LTG 750

Instructions for use

Pin assignment LTG 750

a0	+ 24 VDC
a9	STOP INP
a8	START INP
a7	OK OUT
a6	NOK OUT
a5	STAMP OUT
a4	
a3	
a2	
a1	GND

b0	+ 24 VDC
b9	PGM 128 INP
b8	PGM 64 INP
b7	PGM 32 INP
b6	PGM 16 INP
b5	PGM 8 INP
b4	PGM 4 INP
b3	PGM 2 INP
b2	PGM 1 INP
b1	GND

General:

The programme pre-selection 1...255 is done in binary format. For instance, to select PGM 17, the pins b6 + b2 are to be bridged with 24 V (PIN b0).

Plug connector DIN 41622 in the measuring equipment rack

Name

20-pin