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User Manual

RS36A/B Ground Bond Tester

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1 Preliminary Notes

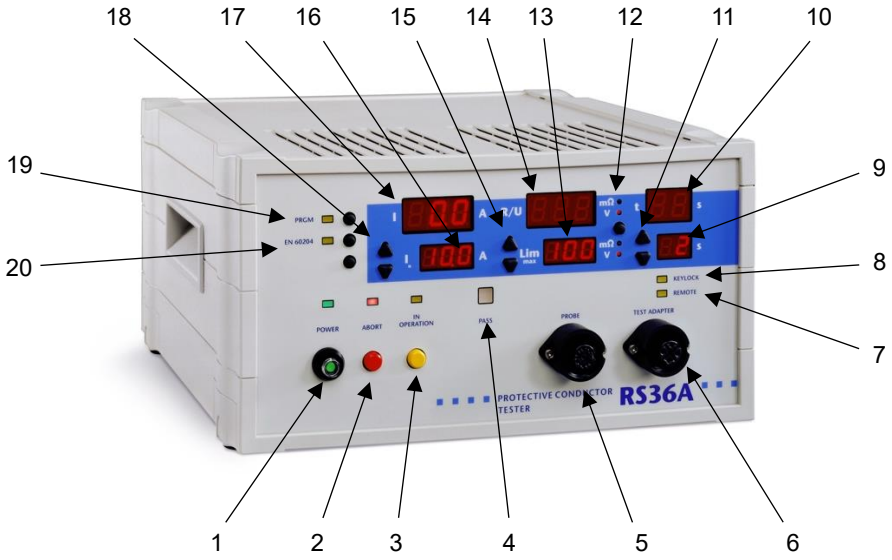
Check the delivery for completeness. Also pay attention to any smaller packages. Check the shipment for possible transport damage, both visible and invisible (hidden). In the event of transport damage, notify the transport company immediately (record the facts).

1.1 Warning

This symbol means that the relevant instruction must be observed for safe operation.

Failure to do so may result in damage to the appliance or injury to the user or other persons!

1.2 Front View



1	Mains switch
2	"ABORT" button with signal lamp
3	"IN OPERATION" button (measurement in progress) with signal lamp
4	Signal lamp "Test time elapsed – result OK" (PASS)
5	Socket for the test probe
6	Socket for connecting the test object (e.g. via cable adapter)
7	Signal lamp "Remote control active" (REMOTE)
8	Signal lamp "Keyboard lock active" (KEYLOCK)
9	Estimated test time
10	Actual test time
11	Buttons ▲ or ▼ for setting the test time
12	Signal lamps – display value in mΩ or V
13	Estimated value of the resistance or voltage limit
14	Actual value of the resistance or voltage
15	Buttons ▲ or ▼ for setting the limit value
16	Estimated value of the test current
17	Actual value of the test current
18	Buttons ▲ or ▼ for setting the test current
19	Button "Test programs" (PRGM; not included in standard version)
20	Button for selecting the EN 60204 function (not included in standard version)

2 General Information

This test device has been built and tested in accordance with EN 61010-1 and has left the factory in perfect condition. In order to maintain this condition and ensure safe operation, the user must observe the instructions and warnings contained in these operating instructions and in EN 50191 (DIN VDE 0104).

Warning!	
	The RS36A/B is intended for indoor use and may only be used for testing protective leads resistance. When installed in a special Series 36 appliance case (GK36S/art. no. 202612), the appliance may also be used outdoors. However, it must be protected from splashing water.

3 Technical Data

Mains Connection: 230V; 50Hz ~ 60Hz

Current Consumption: max. 1.5A

Mains Cable: Included in the scope of delivery

Output Voltage	RS36A: max. 12V AC RS36B in the 10A range: max. 6V AC RS36B in the 25A range: max. 12V AC
Type of Current	AC Current RS36A: nominal 10A RS36B: nominal 10A and 25A
Ammeter, Display	LED 13mm, red
Measurement Range RS36A and RS36B	0A ~ 40A
Resolution	0.1A
Measurement Accuracy	1% ± 2 Digits
Ohmmeter / Voltmeter, Display	LED 13mm, red
Measurement Range RS36A And RS36B	0mΩ ~ 600mΩ or 0V ~ 6V AC
Resolution	1mΩ or 0.01V
Measurement Accuracy	1% ± 2 Digits
Limit Value Setting	RS36A: 1mΩ ~ 500mΩ RS36B in the 10A Range: 1mΩ ~ 300mΩ RS36B in the 25A Range: 1mΩ ~ 200mΩ
Test Time Display	LED 13mm, red
Setting Range	1s ~ 99s, infinite
Duty Cycle in Short-Circuit Mode	RS36A: unlimited at 50% duty cycle maximum 100s at 20% duty cycle RS36B in the 10A range: unlimited at 50% duty cycle RS36B in the 25A range: maximum 100s at 20% duty cycle
Manual Setting	Standard

PC-Controlled Setting via RS232 Interface	Standard
Firmware Update via RS232 Interface	In conjunction with "SourcetronicUpdate"
Measuring Method Using 4-Wire Technology	Standard
Audible Error Message	Standard
Visual Error Message	Standard
RS232 Interface	Standard
Control Interface Control	Standard
Self-Test	Standard
Testing According To EN 60204	Optional, not with standard version
Programming Function (Up to 9 Programs)	Optional, not with standard version
Mains Supply	230V, 50Hz ~ 60Hz
Dimensions	290mm × 160mm × 250mm (W × H × D)
Weight	RS36A: approx. 8kg RS36B: approx. 10.5kg

Fuses: A miniature fuse (5mm × 20mm) 2A medium time-lag is located in the IEC connector on the rear of the RS36A/B.

Warning!	
	Only use an equivalent fuse as a replacement! Do not repair defective fuses!

Environment:

Temperature: 5°C ~ 40°C
Relative Humidity: 80% non-condensing
Altitude: max. 2000m above sea level

4 Notes for Safe Operation

- A visual inspection must be carried out every day before starting the test work to ensure that the mains supply cable is in perfect condition. **Do not start up the device if there are any visible defects or damage!**
- Faulty parts must be replaced or taken out of service.
- The device may only be opened and repaired by Sourcetronic authorized workshops! There are no user-replaceable parts inside the device.
- The RS36A/B is a protection class I device.
- The protective leads connection to the mains cable and the mains socket used must be faultless. A protective leads breakage can cause the machine to become dangerous. Therefore this sort of damage is inadmissible.

5 Maintenance

Regular maintenance increases the availability and maintains the safety of your test station (and is also required by EN 50191). We recommend that you document the maintenance. Please refer to the table below for all maintenance work and intervals.

Maintenance	Interval	Implementation
Faultless condition of the mains supply cable and the test object connection cables	Before Starting the Test	Visual inspection.
Error detection function	Rec. Daily	Proper function can be checked with a so-called defect sample (test object with built-in defect).
Calibration	Rec. Annually	Please contact our customer service to arrange an appointment.
Safety instruction of the test personnel	Annually	As detailed in EN 50191 (DIN VDE 0104)
Cleaning	As Required	• Pull out the mains plug for cleaning. • Clean the appliance with a damp but not too wet cloth. Make sure that no water or other cleaning agents get inside the appliance! • Risk of electric shock from mains voltage! • Never use abrasive cleaners, solvents or cleaning agents that scratch or dissolve the plastic surface!

6 Connection of the Test Device

6.1 Mains Connection

Please use a protected contact socket 230 V, 50 Hz for the mains connection. Connect the device to the mains using the mains cable included in the scope of delivery.

6.2 Test Leads

Two sockets are available on the front of the RS36A/B for connecting the test leads. The "PROBE" socket (5) is used to connect a test probe with a start button (e.g. **VPS36C**). The "TEST ADAPTER" socket (6) is used to connect a lead adapter (**LTA36A**), clip contacts (**VPK36A**) or a second test probe (**VP28**). To obtain optimal measurement results, please secure the plugs with the screw connections provided.

At the customer's request, the plug connectors for connecting the test object can also be built into the rear of the device.

Warning!	
	Do not supply any foreign voltage to the device via the test contacts!

6.3 Ports

The ports for the CAN bus, RS232 and Control are located on the rear of the device. They are described in more detail in the appendix.

7 Testing with the RS36A/B

The RS36A/B is a ground bond tester that fulfils all test specifications with a minimum test current of 10 A AC and a maximum open-circuit voltage of 12 V AC. The RS36B also offers the option of testing with a test current of at least 25 A.

The device operates using four-wire measurement technology in which the test voltage is measured as close as possible to the test object. This method means that the internal resistance of the device and the lead resistance of the test leads are not taken into account during the measurement. The measured value displayed therefore corresponds to the actual protective leads resistance of the test object.

In addition to the normal resistance measurement, the RS36A/B can also be tested in accordance with EN 60204 (optional). This standard uses the voltage drop across the protective conductor as the test criterion – in relation to a test current of 10 A.

Important Note: If one or more buttons do not function, check whether the keylock function is active. You can recognize this by the fact that the LED "KEYLOCK" (8) lights up. If this is the case, please contact the person in charge of your test device or read section A.5.2.3 Deactivate Keyboard Lock in this manual.

7.1 Switch On

Turn on the mains switch (1). The green "POWER" signal lamp above the mains switch serves as an operating indicator. If the signal lamp above the red button (3) lights up, the RS36A/B is ready to switch on.

The previously set test parameters appear in the displays after the firmware version is shown. Previously selected test program parameters are not restored.

7.2 Select Operating Mode

The RS36A/B distinguishes between two operating modes:

- Resistance mode (displays the measurement values in mΩ)
- EN 60204 mode (displays the measurement values in V)

You are in EN 60204 mode when the "EN 60204" signal lamp lights up. The signal lamps of the unit display (12) light up at volts "V". This mode can be switched on and off using the button (20). If the RS36B was in the 25 A range, it automatically switches to the 10 A range when the EN 60204 button is pressed.

If the "PRGM" button (19) is pressed when EN 60204 mode is active, the RS36A/B returns to resistance mode – the device is then in program mode. In resistance mode, the signal lamps (12) show the unit "mΩ".

Changing a test parameter (buttons 11 and 15) takes you from program mode to resistance mode; the "PGRM" signal lamp (19) goes out.

7.3 Set Test Current

With the RS36B, the test current is selected using the buttons ▲ or ▼ (18). The test current cannot be set on the RS36A.

Note (RS36B Only): The current range can only be selected when the test voltage is switched off. The buttons (18) are locked during testing.

7.4 Set Limit Values

The limit values for the resistance or voltage are set using the buttons ▲ or ▼ (15). In resistance mode, the limit value can be set according to the table below.

In EN 60204 mode, only the limit values specified in the regulation (1.0V / 1.4V / 1.9V / 2.6V / 3.3V) are available for selection.

RS36A	1mΩ ~ 500mΩ
RS36B	10A Range: 1mΩ ~ 300mΩ 25A Range: 1mΩ ~ 200mΩ

Note: If a limit value > 200mΩ is selected in the 10A range, the device is automatically switched to the 25A range and the value is reduced to the maximum value of 200mΩ.

7.5 Set Test Time

The test time is visible on display 9 and can be configured using the buttons ▲ or ▼ (11). You can set a time between 1s ~ 99s. If a test without a test time is required, select the infinite "--" setting on the display.

7.6 Test Programs

The RS36A/B can save up to 9 test programs. This makes it possible to quickly switch between different test parameter sets. (This is not available with the standard version.) Saving, editing and deleting the programs is described in the system appendix.

Note: As the voltage drop is precisely defined in the EN 60204 standard and cannot be changed, the EN 60204 mode is independent of the resistance mode. Therefore, no test programs can be programmed in conjunction with EN 60204 tests.

7.6.1 Select a Saved Test Program

A saved test program can be selected by pressing the "PRGM" button (19): Tapping the button calls up the first saved program; each subsequent press of the button calls up the next saved program (e.g. Pr1 → Pr3 → Pr9).

The program number is visible on display 17 and the test parameters associated with this program are visible on displays 9, 13 and 16.

7.6.2 Exit a Test Program

Changing any test parameter (buttons ▲ or ▼ and EN 60204) exits the test program, but the saved program settings remain unchanged.

7.7 Starting a Test

There are a number of different ways to start a test, such as:

- Pressing the test button on the test probe
- A change from Low to High on the "Control" input
- Pressing the yellow button (3) on the front panel

There are three different start modes to logically link the start conditions (see point A.5.5). Start mode 0 is set by default. Regardless of the set start mode, a test can be started at any time using the yellow button (3).

7.8 Concluding a Test

As with the start of a test, the end or termination of a test is dependent on the start mode setting. Generally, though, a test can be stopped at any time by pressing the red button (2). The conditions that can lead to the end or termination of a test are:

- The expiry of the test time (for test times of ≥ 1s)
- Pressing the red "ABORT" button
- Releasing the start button on the test probe
- A change from High to Low on the "Control" input

7.9 Procedure for a Test with Test Time

1) Set the test parameters as described in the chapters above or select a test program. The test time must be ≥ 1s.
2) Make contact with the test object (e.g. with a lead adapter and test probe).
3) Start the test (e.g. with the start button on the test probe).
4) The present current is shown on display 17.
5) The resistance value of the protective lead or the voltage across the protective lead is shown on display 14.
6) The elapsed test time is shown on display 10.
7) When the test time is concluded, there is a short acoustic signal, after which the test button can be released and the maximum measured value is shown on the measured value display 14.

7.10 Procedure for a Test Without Test Time

1) Settings and procedure as in point 7.9, except that the test time must be set to infinite "--".
2) Make contact with the test object.
3) Start the test.
4) The present current is shown on display 17.
5) The resistance value of the protective lead or the voltage across the protective lead is shown on display 14.
6) "--" appears on the test time display 10.
7) The end of the test is determined by the test person or an external control unit (see 7.8) and the maximum measured value is shown on the measured value display 14.

7.11 Result and Error Display After a Test

7.11.1 Test OK ("PASS")

If the maximum measured resistance or voltage value is below the limit value, the result display (4) shows "PASS".

7.11.2 Test Not OK ("FAIL")

Limit Value Error:

If the resistance or voltage exceeds the set limit value, the measured value display (14) flashes. If the measured value exceeds the measuring range of the device, a flashing "1" (overload) is shown in display 14.

Time Error:

If the test is canceled before the test time has elapsed (see 7.8 Concluding a Test), the actual time display (10) flashes.

Current Error:

If the test current was below the set value during the test, the actual current display (17) flashes.

If the test result is not OK ("FAIL"), the reason for the error always flashes on the display and the internal buzzer sounds for approximately one second.

Note: Error messages can be acknowledged and deleted with button (2) (without switching on the test voltage) or with button (3) (when the test voltage is switched on again).

8 Keyboard Lock

The system administrator can completely or partially lock the input buttons to prevent any accidental changes. To deactivate the keylock, please see A.5.2.3 Deactivate Keyboard Lock or contact your system administrator.

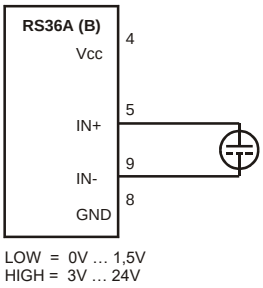
Appendix A Notes for System Administrators

Functions required for everyday operation are described in the previous sections. In addition, the RS36A/B offers further functions that are generally only required when setting up the test station. This section is therefore aimed at the people who set up and maintain the test station.

A.1 "Control" Socket

The RS36A/B can be operated via an external control unit. For this purpose, the "Control" connector is available on the rear of the device as a 9-pin D-sub connector. Three output signals and one input signal are fed via this connector.

A.1.1 Start the Test Cycle with "Control-Start"

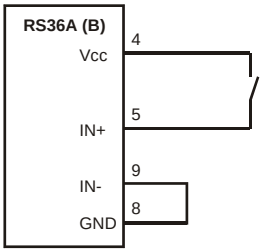


A.1.1.1 Control with External Control Voltage

Apply an external control voltage + 5 ~ 24 V DC to pin 5 (+) and pin 9 (-). The input current is max. 30 mA.

If a sufficient (> 3 V ~ max. 24 V) control voltage is present, this corresponds to a start signal.

If the control voltage falls below 1.5 V, this corresponds to a stop signal.



A.1.1.2 Control with External Potential-Free Relay Contact

External potential-free relay contact between pin 4 and pin 5.

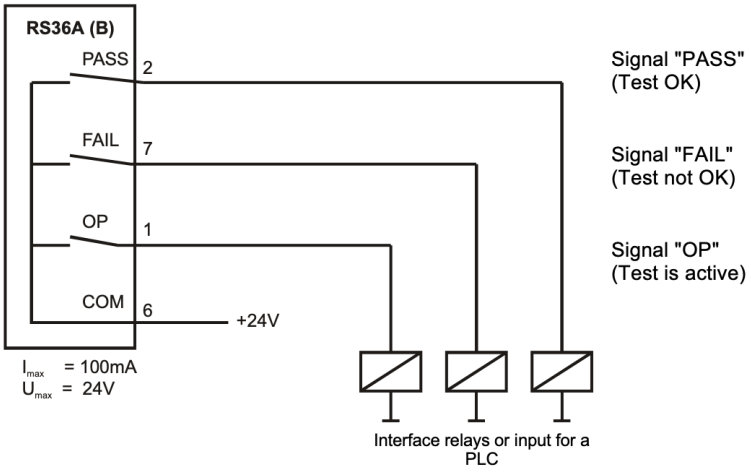
Contact load 5 V; min. 20 mA.

Jumper pin 8 to pin 9 required.

The test can only be started if the start conditions for the individual start modes (see A.5.5) are met.

A.2 Result Output

The signal output is via the potential-free contacts of reed relays. The maximum input voltage is 24 V with a maximum current of 100 mA.



Output "PASS":

After the test time has elapsed, this output is active (contact closed) if no error occurred during the test (→ analogous to signal lamp 4).

Output "FAIL":

After the test time has elapsed, this output is active (contact closed) if at least one error (e.g. limit value, time or current error) occurred during the test.

Output "OP":

This output is active (contact closed) when the test voltage is switched on (→ analogous to signal lamp 3).

If a measurement is started without a test time, the "PASS" and "FAIL" outputs are active from the start of the test, depending on the measured values.

The signal outputs can be reset by pressing the red button (2).

A.3 Program Mode

Note: If no button is pressed for approx. 8s in programming mode, this mode is exited automatically and any settings that have not been saved are lost. This prevents data from being saved unintentionally.

A.3.1 Adding a New Test Program

1) Press and hold the "PRGM" button (19) for approx. 3s until the "Pr" display flashes.
2) Press the button (19) briefly several times to select the desired program number (Pr1 to Pr9).
3) Set the limit value using the buttons ▲ or ▼ (15).
4) Set the test time using the buttons ▲ or ▼ (11).
5) Set the test current (RS36B only) using the buttons ▲ or ▼ (18).
6) Save the program (see A.3.3).

A.3.2 Editing an Existing Test Program

1) Select the program to be edited using the "PRGM" button (19).
2) Then press the "PRGM" button (19) for approx. 3s. When the "PR?" display flashes, the device is in programming mode.
3) Set the test parameters (see A.3.1).
4) Save the changed program.

A.3.3 Saving a Test Program

1) If you press and hold the "PRGM" button (19) again for approx. 3s, the settings for this program number are saved.
2) During the saving process, the letter "P" flashes on the display (17).
3) When the program has been saved successfully, "P" stops flashing and there is an acoustic signal.

A.3.4 Deleting a Test Program

1) Select the program to be deleted using the "PRGM" button (19).
2) Then press the "PRGM" button (19) for approx. 3s.

3) Set the test current to < 10 A using the button ▼ (18). "del" appears on the display.

4) Press and hold the "PRGM" button for approx. 3 s; the settings for this program number are now deleted.

Note: The program numbers of any other existing programs remain unchanged.

Example: If you have saved test parameters as program no. 1, 2, 3 and 4 and now delete program no. 2, programs no. 1, 3 and 4 will remain.

A.4 Serial Interfaces

A.4.1 RS232 Interface

In addition to connecting the report printer, the serial interface can also be used to connect to a standard personal computer. This can receive the test data instead of a log printer.

In addition, this interface offers the option of saving test parameter sets on the computer and downloading them to the RS36A/B if required.

The Keyword Protocol 2000 (KWP 2000) is used to ensure particularly secure and interference-free data transmission. Suitable drivers (LabView, Active-X-Automation, DLL) and the complete data management system Sourcetronic DataView are available and described in the manual.

A.4.1.1 Connection of a Log Printer

A serial report printer, e.g. the type CBM-910 dot matrix printer with 24 characters per line, can also be connected to the "RS232" serial interface. This printer is used to document the test data for each individual test.

The language in which the log is created can be set; you can find more information at A.5 (system settings).

Note: There is no printout for a PE conductor test without a test time specification!

A.4.1.2 Connection to Personal Computer

Plug Connector:

Sub-D:	9-Pin, Socket
Rxd:	Pin 2
Txd:	Pin 3
Ground:	Pin 5

Protocol:

Baud Rate:	9600
Parity:	No
Data Bit:	8
Stop Bit:	1
Handshake:	No
Data:	Pure ASCII

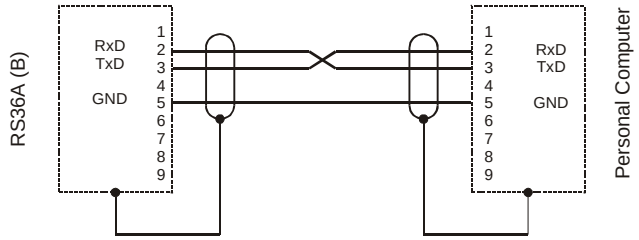
A.4.1.3 Sourcetronic DataView Data Management System

The Sourcetronic DataView PC program enables the saving of any number of test parameter sets, with several test steps and thus with different test parameters and programming, including visual inspection with test instructions for the user.

Furthermore, all test results are automatically documented, including the date, time, test location and test person.

A.4.1.4 RS232 Connection Cable

Null modem cable with 9-pin D-sub plug and 9-pin D-sub socket.



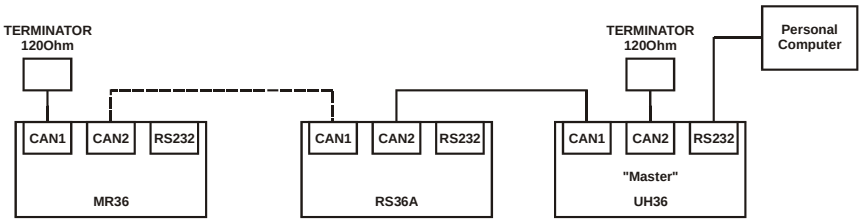
A.4.2 The Sourcetronic CAN Bus

This bus is used when several test devices from the 36 device series, e.g. an UH36 and an RS36A/B, are to be controlled together. This can be done either via the Sourcetronic DataView PC program or in stand-alone mode.

To do this, the devices (maximum 255 units) must be connected with a special CAN cable. This cable is available as an accessory with the corresponding terminators. It does not matter which CAN socket on the back of the device (CAN1 and CAN2) the cable or terminator is plugged into.

If several similar test devices, e.g. three RS36A/B, are connected via CAN, an index must first be assigned to each device.

The Sourcetronic DataView program can now be used to download a self-created test plan to the "master". The test system is thus able to process the test sequence without a connected PC.



A.5 System Settings

System settings should only be made by the system administrator and can therefore only be accessed via a hidden menu.

Warning!	
⚠	It is your responsibility to decide who you make the information about access to the system menu available to!

A.5.1 Access to the System Menu

This will take you to the hidden menu for the system settings:

1) Switch off at the power switch (1). Press and hold both buttons ▲ and ▼ (11) simultaneously while switching on again with the power switch (1). Now release both buttons (11).

2) Use the buttons ▲ and ▼ (18) to select the corresponding menu:

Loc System Setting *Keyboard Lock*

LEd System Setting *Brightness of the Display Elements*

LAn System Setting *Language Selection for Log Output*

StA System Setting *Start Mode Operating Mode*

BU System Setting *Buzzer Mode*

Note: If no button is pressed, the RS36A/B automatically exits the system settings menu after approx. 8s.

A.5.2 "Loc": Keyboard Lock Menu

In terms of process reliability, it makes sense to prevent accidental adjustment of the test parameters. This is reliably achieved with the selective keypad lock.

A.5.2.1 Activate Keyboard Lock

Prerequisite: You are in the "System Settings – Loc" menu, see A.5.1.

Use the buttons ▲ and ▼ (15) to select the desired keypad lock keylock code 0 to 31. Save this setting by pressing the "PRGM" button (19).

Important: A flashing "P" on the display (17) indicates that your setting has not yet been saved. To save, press and hold this button for at least 3s. As soon as your setting has been saved, the device emits an acoustic signal and the "P" in the display (17) stops flashing. When the keypad lock is activated, the "Keylock" signal lamp (8) lights up.

Four examples of frequently used keylock codes are explained below.

Example 1: Keylock Code 0

Testing with only one preset limit value and one test time. Changing any parameters is blocked.

Example 2: Keylock Code 2

It is possible to select the preset test parameter sets via button (19) "PRGM" (see points "Select saved program" and "Programming mode"). Changing and saving any parameters and EN 60204 is disabled.

Example 3: Keylock Code 7

It is possible to change the test parameters and to call up and save test programs. EN 60204 mode is disabled.

Example 4: Keylock Code 12

The setpoint settings and EN 60204 mode are enabled. Calling up and saving test programs is disabled.

Note: To program test parameter sets, no buttons may be disabled; to enable all buttons, see A.5.2.3.

A.5.2.2 Keylock Codes Table

To enable buttons to be locked as individually as possible, 4 keypads or functions can be locked independently of each other to prevent accidental access:

Operating Mode EN 60204	Button 20
Adjustment Keypad	Buttons 11, 15, 18
Select Test Program Function	Button 19 (short press)

Programming Function Button 19 (long press)

Use the keypad (15) to select the desired keylock code. To do this, take the decimal or binary values from the following table.

Note: The keylock code as a decimal value is visible on display field 13, the corresponding binary value is shown on displays 10 and 14.

Setting Values		Keypads and Functions			
Binary	**Dec.**	**EN 60204**	**Setpoint Adjustment**	**Program Selection**	**Programming**
0000	0	X	X	X	X
0001	1	X	X	X	active
0010	2	X	X	active	X
0011	3	X	X	active	active
0100	4	X	active	X	X
0101	5	X	active	X	active
0110	6	X	active	active	X
0111	7	X	active	active	active
1000	8	active	X	X	X

X – the respective button / function is locked

active – the respective button / function is enabled for the user

A.5.2.3 Deactivate Keyboard Lock

Prerequisite: You are in the "System Settings – Loc" menu, see A.5.1.

Keylock Code 15: All buttons / functions are enabled.

A.5.3 "LEd": Brightness of the Display Elements Menu

Prerequisite: You are in the "System Settings – LEd" menu, see A.5.1.

Use the buttons ▲ and ▼ (15) to select the desired brightness and save this setting with the "PRGM" button (19) (hold down for at least 3 s – until "P" stops flashing).

A.5.4 "LAn": Language and Mode Selection Menu for External Printer

Prerequisite: You are in the "System Settings – LAn" menu, see A.5.1.

Use the buttons ▲ and ▼ (15) to select the desired language version and save this setting by pressing the "PRGM" button (19) (hold down for at least 3 s – until "P" stops flashing).

The following languages and printout modes can currently be selected:

0	English
1	German
2	Italian
3	Spanish
4	French
5	Dutch
6	Portuguese
7	Swedish

0	There is no printout
1	It is always printed after a check
2	Printout only with "PASS" test result
3	Printout only with test result "FAIL"

A.5.4.1 Use of Built-In Printers

When using a built-in printer, plug in the connection cable from RS232 to RS232 Printer. (Please only use the cable supplied).

A.5.5 "StA": Start Mode Menu

Different applications require that the response of the RS36A/B to the button on the test probe and the control input can be adapted to the respective application. Start modes 0, 1 and 2 are currently installed; mode 0 is the default setting on delivery.

Warning!	
	Only change the start mode if you are certain!

A.5.5.1 Setting the Start Mode

Prerequisite: You are in the "System Settings – StA" menu, see A.5.1.

Use the buttons ▲ and ▼ (15) to select the desired start mode. Save this setting with the "PRGM" button (19) (press and hold for at least 3 s – until "P" stops flashing).

Start Mode = 0

A test is started either by closing the test button on the test probe or by a high signal at "Control-Start".

Note: The start condition (test button pressed or "Control start" active) that starts a test in this mode can also end it. If a test is started with the test button, for example, it cannot be ended by a low signal at the "Control" connector. The test ends either when the test button is released prematurely, the test time expires or an error occurs. The same applies to the start of a measurement with "Control start".

Start Mode = 1

A test is only started when the test button is pressed and a high signal is present at "Control-Start".

Start Mode = 2

The test is only started by the "control start" (e.g. foot switch). The button on the test probe has no influence.

Note for All Start Modes: The start conditions (high signal at "Control-Start") must be continuously present during the test. If, for example, the foot switch is opened before the test time has elapsed, this results in a time error (display 10 flashes) and the test is invalid (n.i.O.).

A.5.5.2 Table of Different Use Cases

Start Mode	Use Case	Start the Test	End the Test
0 (Default)	The test object is contacted. *Test time 2s*	Press the yellow button on the front panel	• Expiry of the test time (regular) • Red button (cancel) *Control input cannot end the test.*
0 (Default)	The test object is contacted. *No test time*	High signal at the control input	• Red button (regular) • Low signal to control (regular) *The check button has no effect.*
2	The test object is permanently connected, a test button is not available. *Test time 2s*	High signal at the control input	• Expiry of the test time (regular) • Red button (cancel) • Low signal to control (regular)
1	The test object is contacted; no test time is set on the RS36B. *The test time is specified via an external control unit.*	Pressing the test probe button AND High signal at the control input	• Red button (cancel) • Release the test probe button (abort) • Low signal to control (regular)
2	The test object is permanently connected, a test button is not available. *No test time*	High signal at the control input	• Red button (regular) • Low signal to control (regular)

A.5.6 "BU": Buzzer Mode Menu

The RS36A/B has various modes that control the internal buzzer. Buzzer modes 0, 1 and 2 are currently installed; mode 1 is the default setting.

A.5.6.1 Setting the Buzzer Mode

Prerequisite: You are in the "System Settings – BU" menu, see A.5.1.

Use the buttons ▲ and ▼ (15) to select the desired buzzer mode. Save this setting with the "PRGM" button (19) (press and hold for at least 3s – until "P" stops flashing).

Buzzer Mode = 0

The buzzer is deactivated (there is only a short beep when programming).

Buzzer Mode = 1

The start and end of the measurement are acknowledged with a short beep (for "PASS" result). The RS36A/B also acknowledges the successful programming of programs and settings with a short beep.

The device triggers a long beep at the end of the measurement with a "FAIL" error.

Buzzer Mode = 2

The buzzer is activated if the measured value is below the limit value (continuity tester) or if there is no other error. There is no acoustic start or stop signal. A short beep is only emitted during programming.

Note: It is not possible to set a test time in buzzer mode 2!

A.6 Download Device Software

All Series 36 devices have a modern processor architecture that enables the device software (firmware) to be updated. The devices are supplied with the latest version of the firmware. However, it may be necessary to introduce new or specific firmware into the device as a result of further development or customer requests.

Thanks to the integrated flash EPROM, it is now possible to update the firmware without the hassle of replacing the EPROM. This requires a PC, an RS232 null modem cable (see chapter A.4.1.4) and the SourcetronicUpdate program.

Install the SourcetronicUpdate program on a PC and complete the following steps:

1) Switch off the device.
2) Use the RS232 cable to establish the connection between the device (RS232 socket on the rear panel) and the PC (e.g. COM1).
3) Start the "SourcetronicUpdate" program.
4) Select the interface in the "SourcetronicUpdate" window.
5) Click on the "Search" field in the "SourcetronicUpdate" window.
6) A new window will open – select the HEX file with the new firmware in the desired path and click on "Open".
7) Switch on the device.
8) Press "Start" in the "SourcetronicUpdate" window.
9) A new window opens (the progress is displayed in the "Update in %" field).
10) The download starts and the LED display on the device goes out.
11) After the download, the buzzer sounds briefly, the "SourcetronicUpdate" window closes automatically and the new program status is displayed on the device.
12) The download is finished.

Appendix B Extension Modules/Packages (Optional)

B.1 Log Printer Module PDM36

The built-in protocol printer is installed in the front of the tester, depending on the configuration. The printer can be activated or deactivated via pushbuttons. A printout is made immediately after the end of the test. The connection to the test device is made at the rear of the device via a cable connection. This means that additional test devices can be connected to the same report printer. A changeover switch is therefore not required if the tests are carried out one after the other.

To control the printer, a cable connector is plugged from the standard RS232 interface (9-pin SUB-D / RS232) to an additional attached interface (also 9-pin SUB-D / PRINTER) as mentioned above.

Attention: For operation with the DataView data management program, the plug must be removed from the standard RS232 interface! Parallel operation is not possible!

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