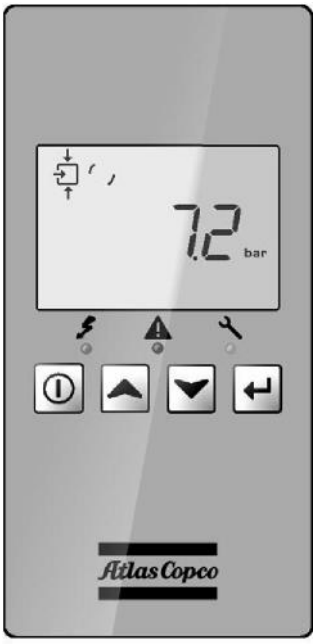
3 Elektronikon Base Controller

3.1 Elektronikon™ Base Controller

Control panel



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Introduction

In general, the Elektronikon™ Base Controller has following functions:

- Controlling the compressor;
- Protecting the compressor;
- Monitoring service intervals;
- Automatic restart after voltage failure (made inactive);

Automatic control of the compressor

The controller maintains the net pressure between programmable limits by automatically loading and unloading the compressor. A number of programmable settings, e.g. the unloading and loading pressures, the minimum stop time and the maximum number of motor starts are taken into account.

The controller stops the compressor whenever possible to reduce the power consumption and restarts it automatically when the net pressure decreases. If the expected unloading period is to short, the compressor is kept running to prevent too short standstill periods.

Protecting the compressor

Shutdown warning

The shutdown warning is a programmable warning that advises the operator about a possible problem before the shutdown.

If one of the measurements exceeds the programmed shutdown warning level, this will also be indicated to warn the operator before the shutdown level is reached.

Shutdown

If the compressor element outlet temperature exceeds the programmed shutdown level or the overload relay of the main motor trips, the compressor will be stopped. This will be indicated on the display of the controller.

Service warning

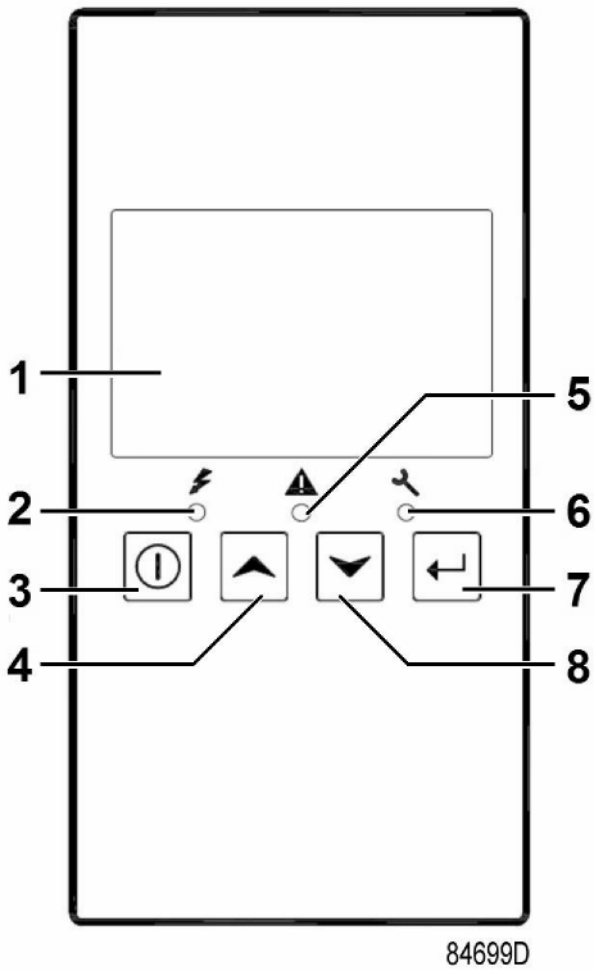
If the service timer exceeds the preset value, the controller advises the operator via the display, to carry out the service maintenance.

Automatic restart after voltage failure

The controller has a built-in function to automatically restart the compressor when the voltage is restored after voltage failure. This function is deactivated on compressors leaving the factory.

3.2 Control panel

Detailed description



Control panel of the Elektronikon Base controller

Reference	Designation	Function
1	Display	Shows icons and operating conditions.
2	LED, Voltage on	Indicates that the voltage is switched on.
3	Start/stop button	Keep pressed for 3 seconds to start compressor. Press to stop compressor if running. Use this button to go to previous screen or to end the current action.
4	Scroll button	Use these buttons to scroll through the menu.
5	LED, Warning	Is lit if a warning condition exists.
6	LED, Service	Is lit when service is needed.
7	Enter button	Press 3 seconds to enter in menu. Use this button to confirm the last action. Press 5 seconds to reset alarm.
8	Scroll button	Use these buttons to scroll through the menu.

3.3 Icons used on the display

Function	Icon	Description
Stopped/Running		When the compressor is stopped, the icon stands still. When the compressor is running, the icon is rotating.
Compressor status		Motor stopped
		Running unloaded Running unloaded (blinking for manual stop)
		Running loaded
Machine control mode		Remote start/stop active
Automatic restart after voltage failure		Automatic restart after voltage failure is active
Active protection functions		Emergency stop
Service		Service required
Units	MPa	Pressure unit (Mega Pascal)
	bar	Pressure unit (pounds per square inch)
	PSI	Pressure unit (bar)
	°C	Temperature unit (degree Centigrade)
	°F	Temperature unit (degree Fahrenheit)
		Motor

Function	Icon	Description
		A time/delay parameter is displayed. NOTE: • x1000: ON if the displayed value is in thousands of • hrs: ON if the displayed value is in hours • s: ON if the displayed value is in sec
		Element outlet temperature

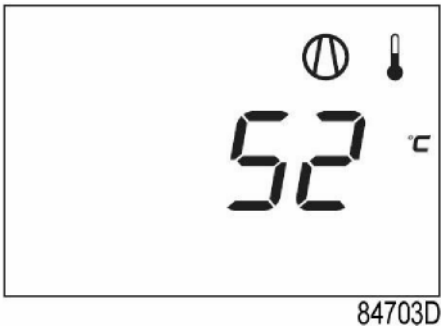
3.4 Main screen

At power on, the first screen is a test screen (Icon, digit and led are on). The next screen is the Main screen, shown automatically. The Main screen shows:

- The compressor status by means of pictographs;
- The air outlet pressure;

Main screen with pressure (stopped compressor)

From the Main screen it is possible with up and down buttons (4-8) to change the view from pressure to temperature of the element outlet.



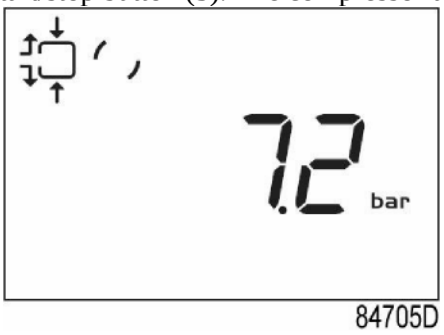
Main screen with temperature (stopped compressor)

3.5 Main function

To switch on the compressor, press start/stop button (3) for 3 seconds. The compressor starts and the status is shown:

Screen with running compressor

To stop the compressor, push start/stop button (3). The compressor unloads:



Screen with unloading compressor

When the unload time is elapsed, the compressor is stopped and the controller goes back to main screen:

Main screen with pressure (stopped compressor)

To enter the main menu (starting from the Main screen), press the enter button (7) for 3 seconds. The main menu is shown:

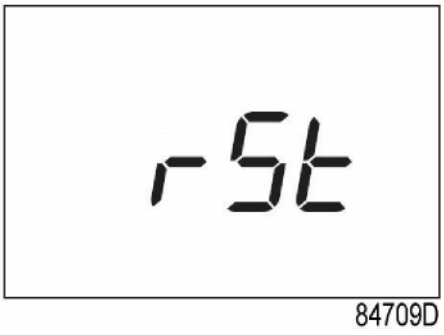
First screen of main menu

It is possible to scroll in the menu with the up or down buttons (4-8). To select one item push the enter button (7). To end the current action push start/stop (3) button.

If the emergency stop button is pushed, the compressor stops immediately and the following screen will appear:

Emergency stop

When the emergency push button is restored, reset the alarm by pressing the enter button (7) for 5 seconds. The following screen will appear:



Alarm reset

3.6 Shutdown warning

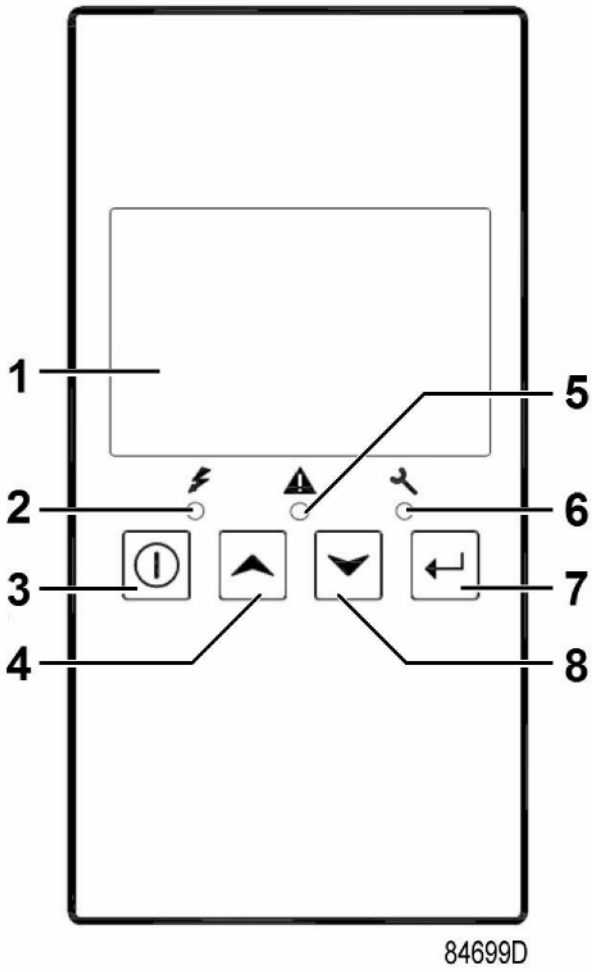
Description

A shutdown warning will appear in the event of:

- A too high temperature at the outlet of the compressor element.

Compressor element outlet temperature

- If the outlet temperature of the compressor element exceeds the shutdown warning level (factory set at 110˚C/ 230˚F), warning LED (5) is on.
- Press Scroll up or down buttons (4-8). The screen shows the temperature at the compressor element outlet.



It remains possible to check the actual status of other parameters by pressing the enter button (7) for 3 seconds. Press button (3) to stop the compressor and wait until the compressor has stopped. The warning message will disappear as soon as the warning condition disappears.

3.7 Shutdown

Description

The compressor will shutdown:

- In case the temperature at the outlet of the compressor element exceeds the shutdown level (detected by temperature sensor (TT11) or by temperature switch (TSHH11/TSHH21).
- In case of error of the outlet pressure sensor (PT20) or temperature sensor (TT11).
- In case of overload of the compressor motor (M1)

Compressor element outlet temperature

If the outlet temperature of the compressor element exceeds the shutdown level (factory setting 115˚C/ 239˚F):

- The compressor will shutdown.
- Alarm LED (5) will flash.
- The following screen will appear:

Main screen with shutdown indication, element outlet temperature

- The related pictograph

will appear flashing.

- Scroll Up or Down buttons (4-8) until the current element outlet temperature appears.

Shutdown screen, element outlet temperature

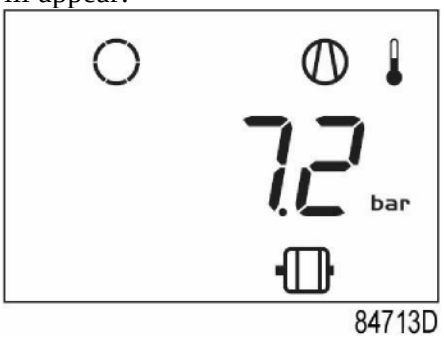
The screen shows that the temperature at the outlet of the compressor element is 117 ˚C.

- When the shutdown condition has been solved, press the Enter button (7) for 5 seconds.
- When <rSt> appears on the display, the compressor can be restarted.

Motor overload

In the event of motor overload:

- The compressor will shutdown.
- Alarm LED (5) will flash.
- The following screen will appear:



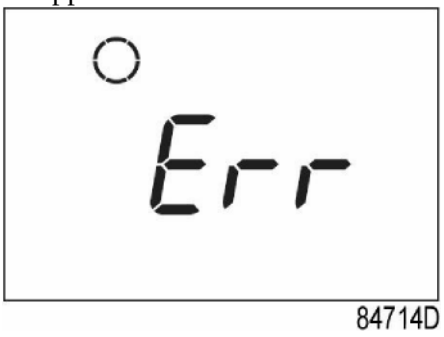
Main screen with shutdown indication, motor overload

- Contact you dealer for fault troubleshooting
- When the shutdown condition has been solved, press the enter button (7) for 5 seconds.
- When <rSt> appears on the display, the compressor can be restarted.

Error pressure/temperature sensor

In the event of an error of the outlet pressure sensor (PT20) or temperature sensor (TT 11):

- The compressor will shutdown.
- The following screen will appear:



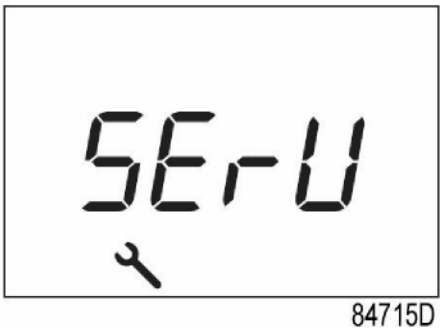
Example of error sensor

3.8 Service warning

Description

A service warning will appear when the service timer has reached the preset time interval.

If the service timer exceeds the programmed time interval, alarm LED (6) is blinking with a following screen:



Blinking screen

- Press Enter button (7) to enter the main menu.
- Select <dAtA> and press Enter button (7) to enter the data menu.
- Scroll (buttons 4-8) until <d.6> and the service symbol is shown.
- Press enter button (7).
- The actual reading of the service timer is shown in <hrs>.

Example of running hours screen

The example screen shows that the service timer is at 2002 hours.

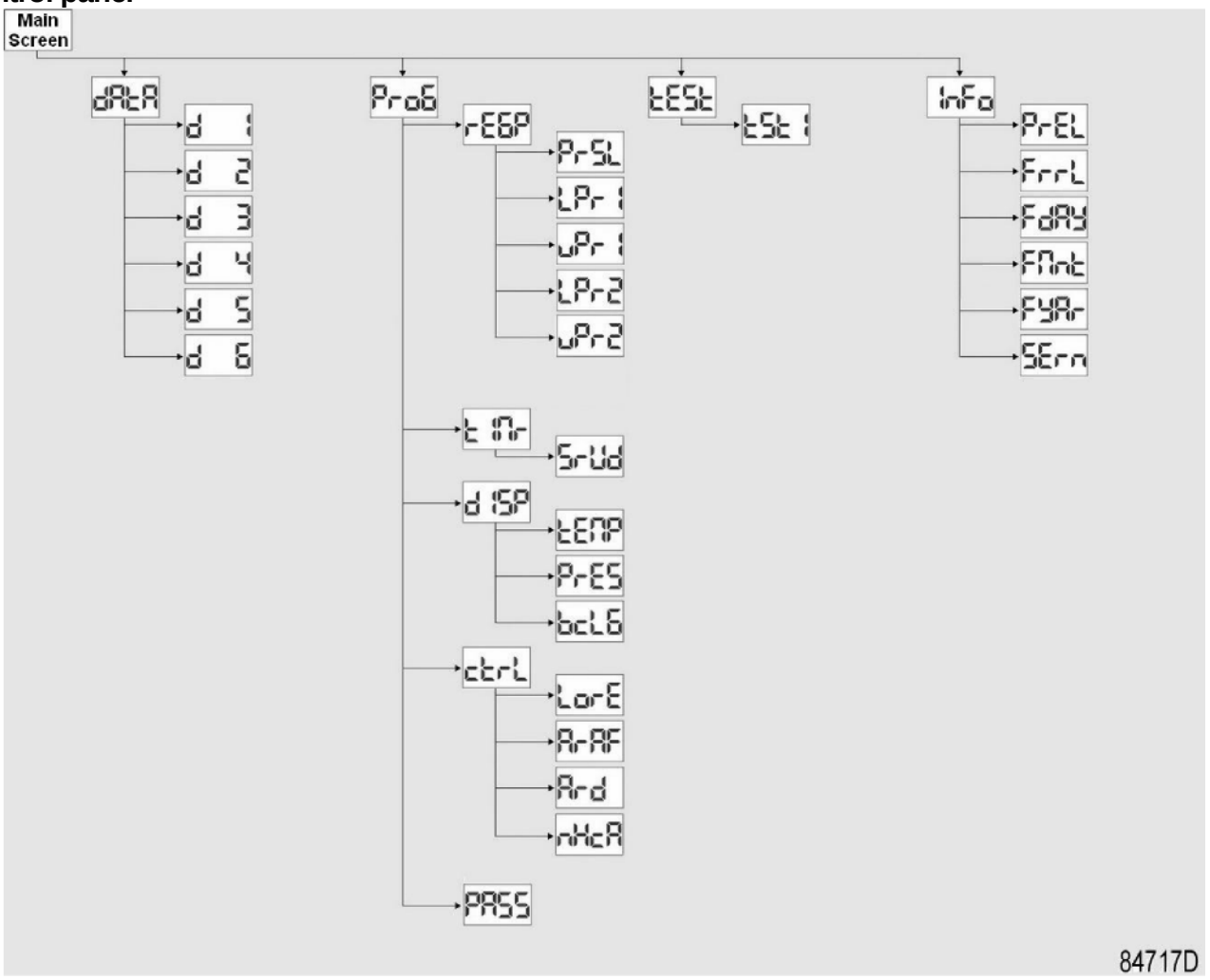
Stop the compressor, switch off the voltage and carry out the required service actions.

After servicing, reset the service timer.

See section Calling up/resetting the service timer.

3.9 Scrolling through all screens

Control panel



General overview of the menu structure

From the Main screen press the enter button (7) for 3 seconds to enter the Menu. You will find the following items:

- **Data menu:** Data counters parameters.
- **Programming menu:** Submenu of Regulation pressure, Timer, Display setting and Control setting.
- **Test menu:** Display test.
- **Info menu:** Information of firmware release.

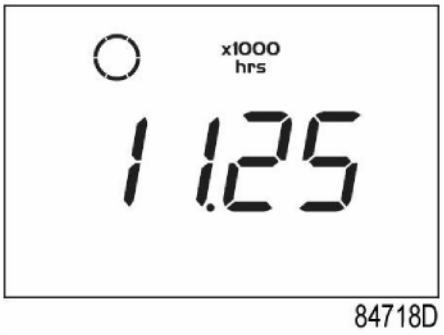
Overview of the screens

Menu item	Submenu	Digital input screen	Designation
<dAtA> Data		<d.1>	Calling up running hours
		<d.2>	Calling up motor starts
		<d.3>	Calling up module hours
		<d.4>	Calling up loading hours
		<d.5>	Calling up load solenoid valve
		<d.6>	Calling up service timer
<ProG> Programming	<rEG.P> Regulation Pressure	<Pr.SL>	Calling up modifying pressure band selection
		<LPr.1>	Calling up modifying pressure band settings
		<uPr.1>	Calling up modifying pressure band settings
		<LPr.2>	Calling up modifying pressure band settings
		<uPr.2>	Calling up modifying pressure band settings
	<tiMr> Timer	<SrV.d>	Calling up maintenance warning
	<diSP> Display	<tEMP>	Calling up modifying unit of temperature
		<PrES>	Calling up modifying unit of pressure
		<bC.LG>	Calling up modifying time of backlight
	<Ctrl> Control	<Lo.rE>	Local/remote start/stop
		<Ar.Af>	Calling up automatic restart after voltage failure
		<Ar.d>	Delay automatic restart after voltage failure
		<nHCA>	Number of hourly compressor activation
	<PASS>		Activating password protection
<tEst> Test		<tSt. 1>	Display testing
<info> Info		<P.rEL>	Parameter Map Release
		<F.rRl>	Firmware Release
		<F.dAY>	Firmware Release Day
		<F.Mnt>	Firmware Release Month
		<F.YAr>	Firmware Release Year
		<SEr.n>	Serial number

3.10 Calling up running hours

Starting from the Main screen:

- Press Enter button (7) for 3 seconds to enter the Main menu.
- Select <dAtA> and press Enter button (7) to enter the Data menu.
- Scroll Up or Down buttons (4-8) until <d.1> and the motor stopped symbol is shown.
- Press Enter button (7): the running hours are shown.

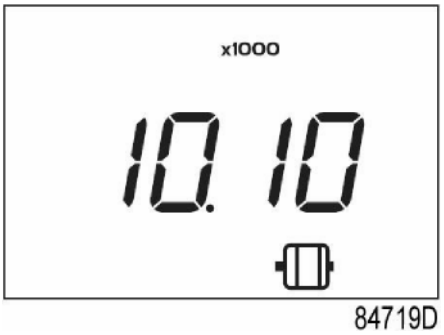


The screen shows the unit used <x1 000 hrs> and the value <11.25>: the running hours of the compressor are 11250 hours.

3.11 Calling up motor starts

Starting from the Main screen:

- Press Enter button (7) for 3 seconds to enter the Main menu.
- Select <dAtA> and press Enter button (7) to enter the Data menu.
- Scroll Up or Down buttons (4-8) until <d.2> and the motor symbol is shown.
- Press Enter button (7): the number of motor starts is shown.



This screen shows the number of motor starts (x1 or - if <x1000> lights up - x1 000). In the above example, the number of motor starts is 10100.

3.12 Calling up module hours

Starting from the Main screen:

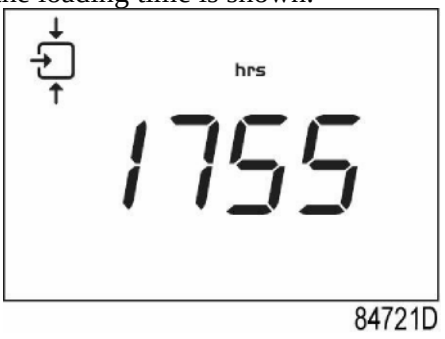
- Press Enter button (7) for 3 seconds to enter the Main menu.
- Select <dAtA> and press Enter button (7) to enter the Data menu.
- Scroll Up or Down buttons (4-8) until <d.3> and <hrs> is shown.
- Press Enter button (7): the module time appears.

In the example shown, the screen shows the unit used <hrs> and the value <5000>: the controller module has been in service during 5000 hours.

3.13 Calling up loading hours

Starting from the Main screen:

- Press Enter button (7) for 3 seconds to enter the Main menu.
- Select <dAtA> and press Enter button (7) to enter the Data menu.
- Scroll Up or Down buttons (4-8) until <d.4> and the running loaded symbol is shown.
- Press Enter button (7): the loading time is shown.

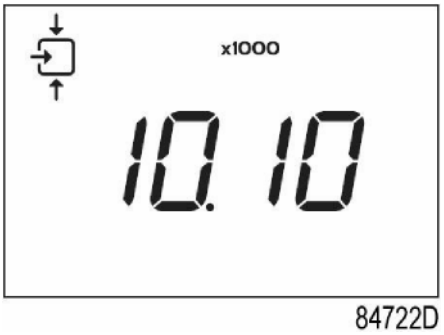


The screen shows the unit used <hrs> (or <x1000 hrs>) and the value <1755>: the compressor has been running loaded during 1755 hours.

3.14 Calling up load solenoid valve

Starting from the Main screen:

- Press Enter button (7) for 3 seconds to enter the Main menu.
- Select <dAtA> and press Enter button (7) to enter the Data menu.
- Scroll Up or Down buttons (4-8) until <d.5> and the running loaded symbol is shown.
- Press Enter button (7): the number of loadings is shown.



This screen shows the number of loading actions (x1 or - if <x1 000> lights up - x1 000). In the above example, the number of unload to load actions is 10100.

3.15 Calling up/resetting the service timer

Starting from the Main screen:

- Press Enter button (7) for 3 seconds to enter the Main menu.
- Select <dAtA> and press Enter button (7) to enter the Data menu.
- Scroll Up or Down buttons (4-8) until <d.6> and <hrs> is shown.
- Press Enter button (7): the loading time is shown.

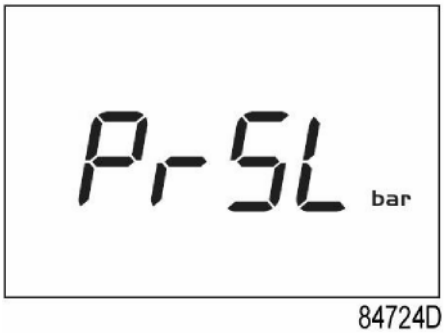
This screen shows the unit used <hrs> (or <x1 000 hrs>) and the value <1191>. In the example shown, the compressor has run 1191 hours since the previous service.

To reset the timer, contact your supplier.

3.16 Calling up/modifying pressure band selection

Starting from the Main screen:

- Press Enter button (7) for 3 seconds to enter the Main menu.
- Select <ProG> and press Enter button (7) to enter the Programming menu.
- Scroll Up or Down buttons (4-8) to <reG.P> for regulation pressure.
- Press Enter button (7) to enter the submenu.



- Scroll Up or Down buttons (4-8) until <PrSL> is shown and then press Enter button (7).
- Pressure band 1 (<SEL. 1>) is shown. Scroll Up or Down buttons (4–8) to pressure band 2 (<SEL.2>).
- Press Enter button (7) on the desired pressure band.

3.17 Calling up/modifying pressure band settings

Starting from the Main screen:

- Press Enter button (7) for 3 seconds to enter the Main menu.
- Select <ProG> and press Enter button (7) to enter the Programming menu.
- Scroll Up or Down buttons (4-8) to <reG.P> for regulation pressure.
- Press Enter button (7) to enter the submenu.

<LPr. 1> is parameter of Load Pressure band 1

<uPr. 1> is parameter of Unload Pressure band 1

<LPr.2> is parameter of Load Pressure band 2

<uPr.2> is parameter of Unload Pressure band 2

- Scroll Up or Down buttons (4-8) and press Enter button (7) to select parameter.
- The actually used pressure is shown. Scroll Up or Down buttons (4-8) to set pressure value and press Enter button (7) to confirm. The unit blinks and the new setting is saved.

3.18 Calling up/modifying the unit of temperature

The unit of temperature measurement can only be changed when the compressor is stopped.

Starting from the Main screen:

- Press Enter button (7) for 3 seconds to enter the Main menu.
- Select <ProG> and press Enter button (7) to enter the Programming menu.
- Scroll Up or Down buttons (4-8) to <diSp> for display settings.
- Press Enter button (7) to enter the submenu.
- Scroll Up or Down buttons (4-8) to <tEMP> and press Enter button (7).
- The actually used unit is shown. Possible settings are <°C > and <°F >.
- Scroll Up or Down buttons (4-8) to set the unit of temperature and press Enter button (7) to confirm. The unit blinks and is saved.

3.19 Calling up/modifying the unit of pressure

The unit of pressure measurement can only be changed when the compressor is stopped.

Starting from the Main screen:

- Press Enter button (7) for 3 seconds to enter the Main menu.
- Select <ProG> and press Enter button (7) to enter the Programming menu.
- Scroll Up or Down buttons (4-8) to <diSp> for display settings.
- Press Enter button (7) to enter the submenu.
- Scroll Up or Down buttons (4-8) to <PrES> and press Enter button (7).
- The actually used unit is shown. Possible settings are <bar>, <psi> and <MPa>.
- Scroll Up or Down buttons (4-8) to set the unit of pressure and press Enter button (7) to confirm. The unit blinks and is saved.

3.20 Calling up/modifying backlight time

The backlight will be activated after pressing any button and for the interval of time set in the parameter <bC.LG> (in sec).

Starting from the Main screen:

- Press Enter button (7) for 3 seconds to enter the Main menu.
- Select <ProG> and press Enter button (7) to enter the Programming menu.
- Scroll Up or Down buttons (4-8) to <diSp> for display settings.
- Press Enter button (7) to enter the submenu.
- Scroll Up or Down buttons (4-8) to <bC.LG> and press Enter button (7).
- The current backlight setting is shown. It is possible to set a value between 0s and 1 20s.
- Scroll Up or Down buttons (4-8) to set the time of backlight and press Enter button (7) to confirm. The unit blinks and is saved.

3.21 Activating automatic restart after voltage failure

Description

This function allows the compressor to restart automatically after voltage failure. The activation can only be done by your dealer. Please contact him for further details.

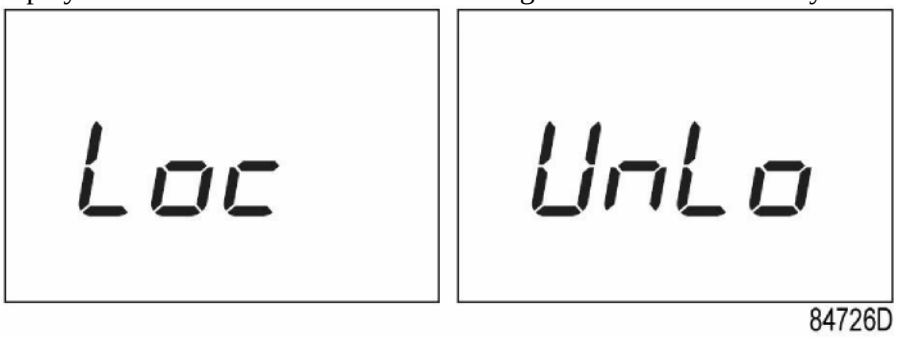
After any power failure, before restarting, the compressor will wait for a fixed time. When delay time is running, the display will show the related countdown value as below:

Example countdown delay time of automatic restart after power failure.

3.22 Keyboard lock

Keep both Up and Down buttons pressed for more than 3 seconds to lock or unlock the keyboard.

- The display will show the label <Loc> blinking for 3 seconds if the keyboard has been locked.
- The display will show the label <UnLo> blinking for 3 seconds if the keyboard has been unlocked.



Example Lock/unlock screen.