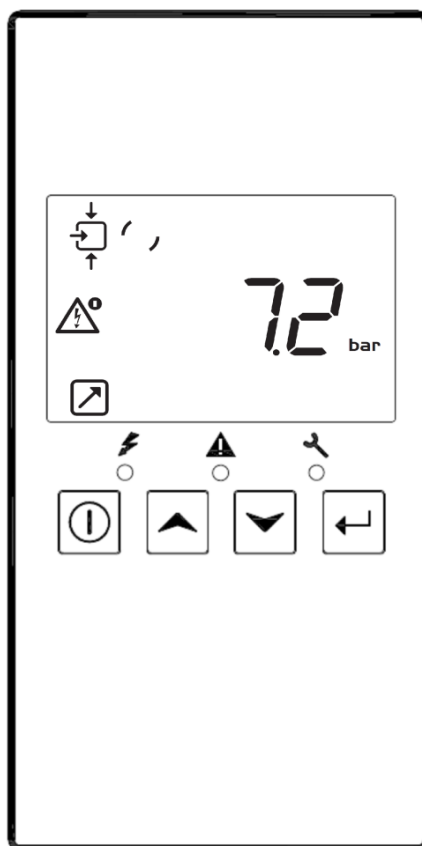# Air Control 5.0 Basic Controller

Control panel

Introduction

In general, the Air Control 5.0 Basic 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 regulator 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 regulator 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 stand-still periods.

Protecting the compressor

Shut-down warning

The Shut Down warning is a programmable warning that advise the operator about a possible problem before the shut-down. If one of the measurements exceeds the programmed shut-down warning level, this will also be indicated to warn the operator before the shut-down level is reached. For details see page 6.

Shut-down

If the compressor element outlet temperature exceeds the programmed shut-down level or the overload relay of main motor trips, the compressor will be stopped. This will be indicated on the display of the regulator. For details see page 6.

Service warning

If the service timer exceeds the preset value, the controller advise the operator via the display, to carry out the service maintenance. For details see page 8.
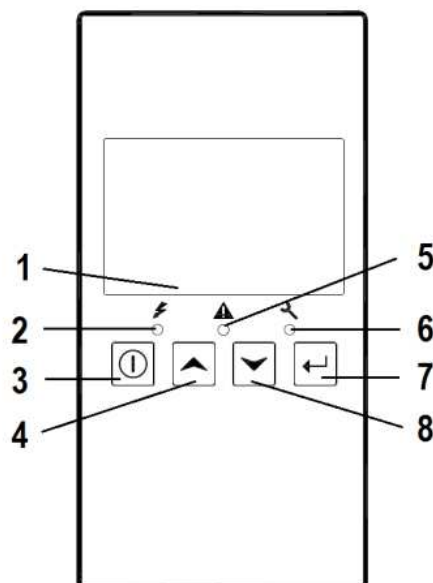
Automatic restart after voltage failure

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

For details see page 14.

1.1 Control panel

Detailed description

ALUP Technical Dept

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 press 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.

1.2 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 loaded
		• Running unloaded • Running unloaded (blinking for manual stop)
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
	MPa	• Pressure unit (mega Pascal)
	bar	• Pressure unit
	PSI	• Pressure unit
	⏱ x1000 hrs	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
	°C	• Temperature unit
	°F	• Temperature unit
		• Motor
		• Element outlet temperature.
		• Wrong rotation input is active

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1.3 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;
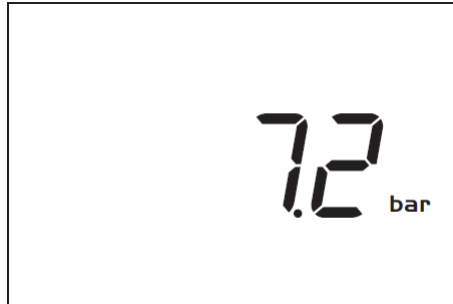
Main screen with pressure (stopped compressor)

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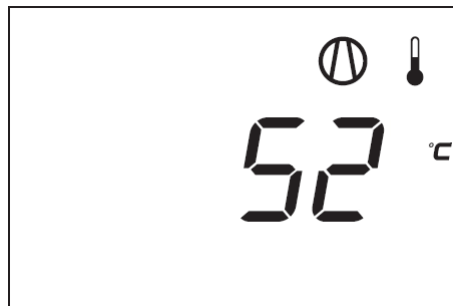
Main screen with temperature (stopped compressor)

1.4 Main function

• To switch on the compressor, press for 3 seconds (s) start/stop button (3), compressor starts and status is shown:
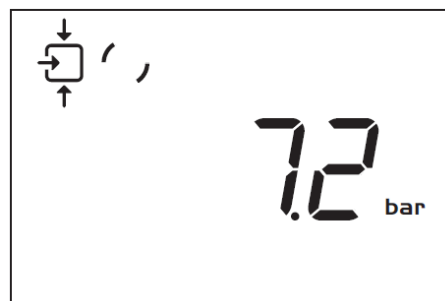
Screen with running compressor

ALUP Technical Dept

• To stop the compressor, push start/stop button (3), compressor running unload:
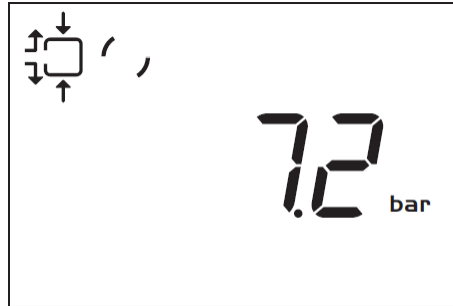
Screen with running unload compressor

When unload time elapsed, compressor is stopped and back to main screen:
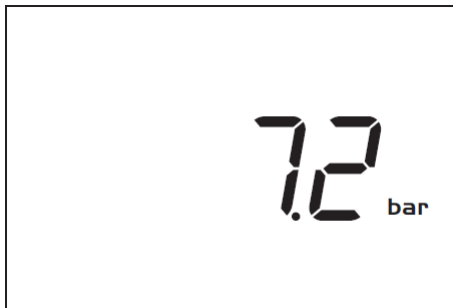
Main screen with pressure (stopped compressor)

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

First screen of main menu

Is possible to scroll in menu with up or down buttons (4-8), to select one item push enter button (7) and to go to the previous screen or to end the current action push start/stop (3) button. For details see page 9.

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

Emergency stop

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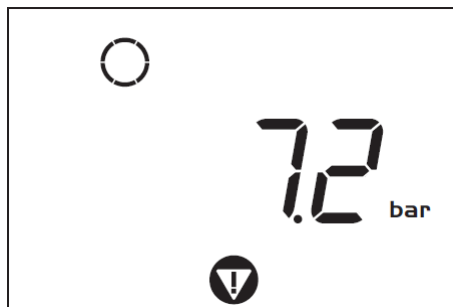
When emergency push button is restored, to reset alarm press for 5 seconds enter button (7), than you will see <rSt> on display:
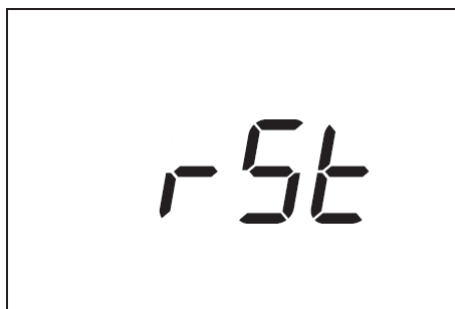
Alarm reset

1.5 Shut-down warning

Description
A shut-down warning will appear in case of:
• Too high a temperature at the outlet of the compressor element.
Compressor element outlet temperature
• If the outlet temperature of the compressor element exceeds the shut-down warning level (factory set at 110 ˚C / 230 ˚F), warning LED (5) is on and the element temperature pictograph blinking.
• Press Scroll up or down buttons (4-8). The screen shows the temperature at the compressor element outlet.
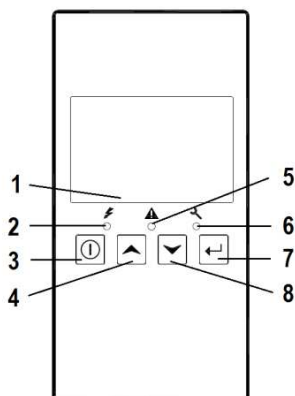
It remains possible to enter in menu with press enter button (7) for 3s to check the actual status of other parameters. Press button (3) to stop the compressor and wait until the compressor has stopped. The warning message will disappear as soon as the warning condition disappears.

1.6 Shut-down

Description

The compressor will be shut down:
• In case the temperature at the outlet of the compressor element exceeds the shut-down level (detected by temperature sensor (TT11) or by temperature switch (TSHH11)).
• In case of error of the outlet pressure sensor (PT20) or temperature sensor (TT11).
• In case of overload of the compressor motor (M1).

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Compressor element outlet temperature (TT11)

• If the outlet temperature of the compressor element exceeds the shut-down level (factory setting 115 ˚C /239 ˚F) the compressor will be shut-down, alarm LED (5) will flash and the following screen will appear:
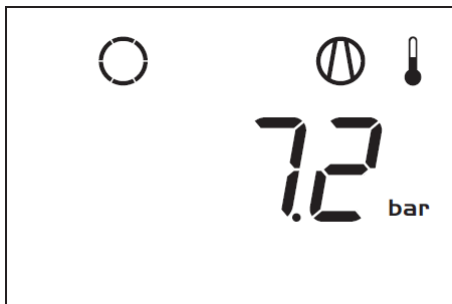
Main screen with shut-down indication, element outlet temperature

The related pictograph ⏀ 🌡 will appear flashing.

• Press Scroll buttons up or down (4-8) until the current element outlet temperature appears.
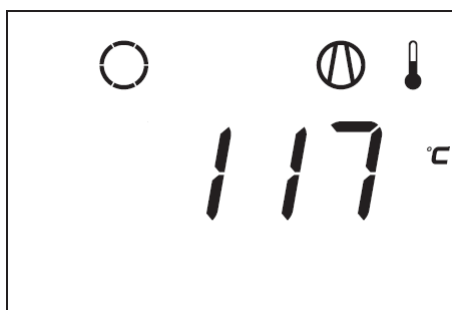
Shut-down screen, element outlet temperature

The screen shows that the temperature at the outlet of the compressor element is 115 ˚C.

• When the shut-down condition has been solved, the compressor could be restarted.

Motor overload

• In case of motor overload, the compressor will be shut-down, alarm LED (5) will flash automatically and the following screen will appear:
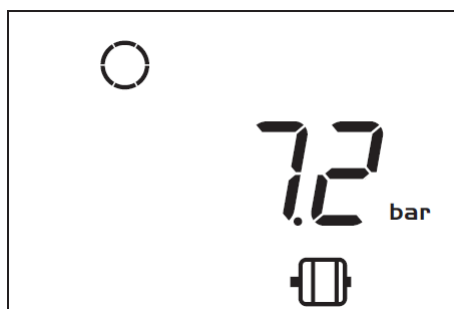
Main screen with shut-down indication, motor overload.

• Contact you dealer for fault troubleshooting

• When the shut-down condition has been solved, the compressor could be restarted.

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Error pressure/temperature sensor

• In case of error of the outlet pressure sensor (PT20) or temperature sensor (TT11), compressor will be shut-down. The following screen will appear:
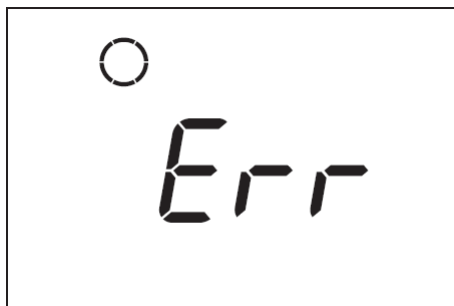
Example of error sensor.

1.7 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:
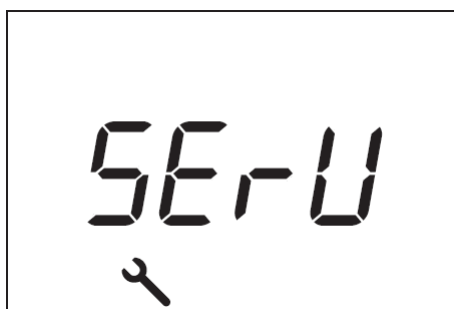
Blinking screen

• Press Enter button (7) until enter in main menu.

• Select <dAtA> and press Enter button (7) to enter in data menu.
• Scroll up or down buttons (4-8) to <d.6> and the service symbol is shown.
• Press enter button (7): the actual reading of the service timer appears and is shown in <hrs>
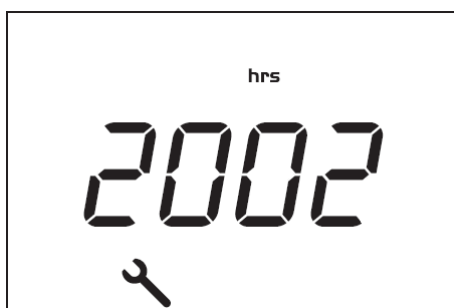
Example of running hours screen

The example screen shows that the service time is at 2002hours.
Stop the compressor, switch off the voltage and carry out the required service actions. See section Preventive maintenance schedule.
After servicing, reset the service timer. See section. Calling up/resetting the service timer.

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1.8 Scrolling through all screens

From the Main screen press for 3s enter button (7) to enter in Menu and then 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.

Below the general overview of menu structure:

MENU

\<dAtA\>			**Data menu**
	\<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

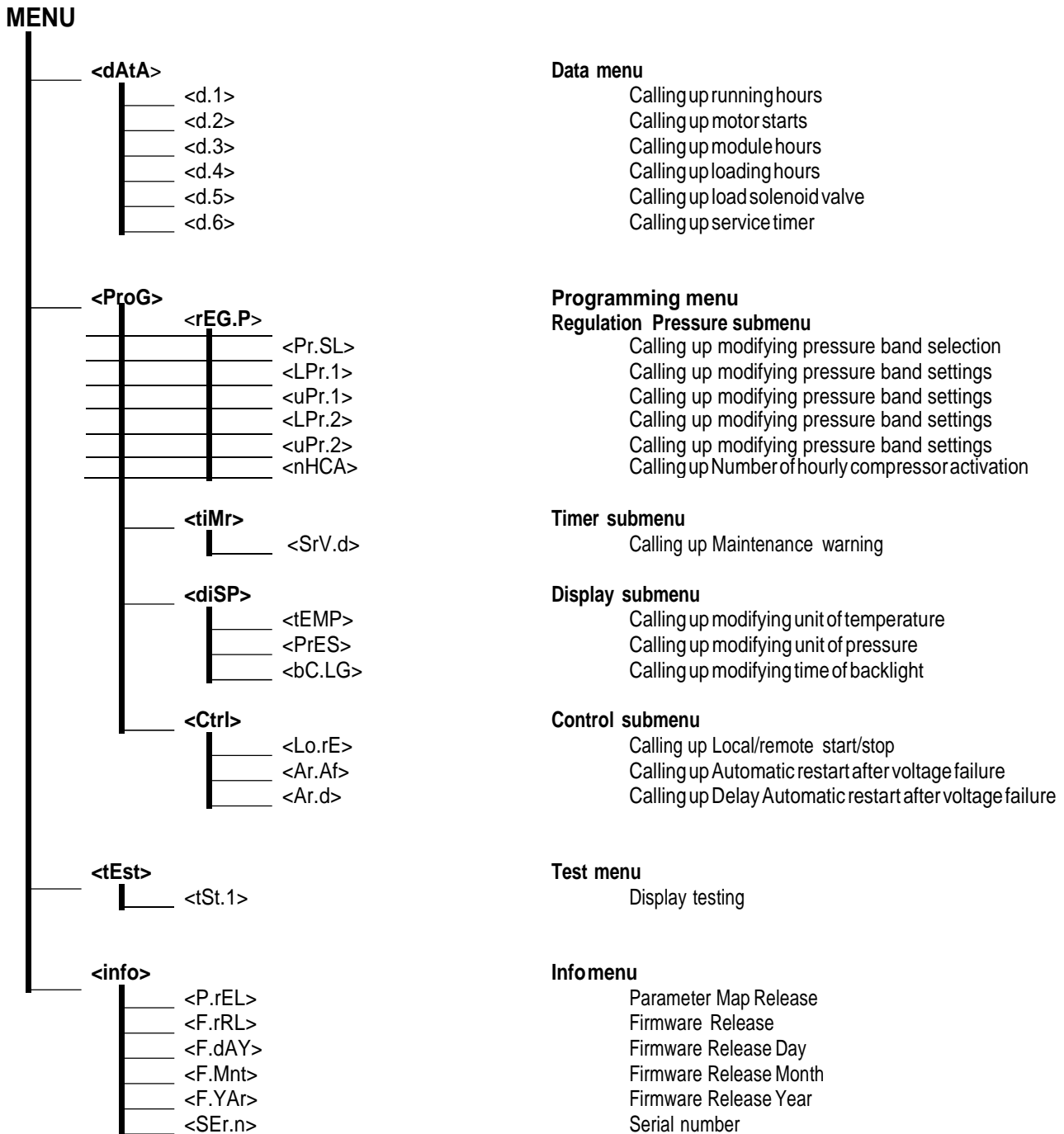|			
\<ProG\>			**Programming menu**
	\<rEG.P\>		**Regulation Pressure submenu**
		\<Pr.SL\>	Calling up modifying pressure band selection
		\<LPr.1\>	Calling up modifying pressure band settings
		\<uPr.1\>	Calling up modifying pressure band settings
		\<LPr.2\>	Calling up modifying pressure band settings
		\<uPr.2\>	Calling up modifying pressure band settings
		\<nHCA\>	Calling up Number of hourly compressor activation
	\<tiMr\>		**Timer submenu**
		\<SrV.d\>	Calling up Maintenance warning
	\<diSP\>		**Display submenu**
		\<tEMP\>	Calling up modifying unit of temperature
		\<PrES\>	Calling up modifying unit of pressure
		\<bC.LG\>	Calling up modifying time of backlight
	\<Ctrl\>		**Control submenu**
		\<Lo.rE\>	Calling up Local/remote start/stop
		\<Ar.Af\>	Calling up Automatic restart after voltage failure
		\<Ar.d\>	Calling up Delay Automatic restart after voltage failure

\<tEst\>			**Test menu**
	\<tSt.1\>		Display testing

\<info\>			**Info menu**
	\<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

1.9 Calling up running hours

Starting from the Main screen:
- Press Enter button (7) until enter in main menu.
- Select <dAtA> and press Enter button (7) to enter in data menu.
- Scroll up or down buttons (4-8) to <d.1> and the motor stopped symbol is shown.
- Press Enter button (7): the running hours appears and are shown in <hrs>.
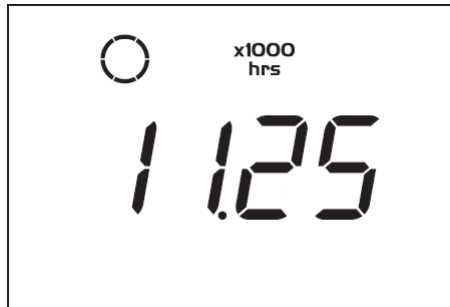
The screen shows the unit used (x1000 hrs) and the value (11.25): the running hours of the compressor are 11250 hours.

1.10 Calling up motor starts

Starting from the Main screen:
- Press Enter button (7) until enter in main menu.
- Select <dAtA> and press Enter button (7) to enter in data menu.
- Scroll up or down buttons (4-8) to <d.2> and motor symbol is shown.
- Press Enter button (7) the number of motor starts is shown:
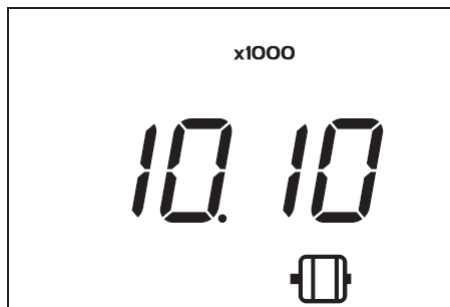
This screen shows the number of motor starts (x 1 or - if <x1000> lights up - x 1000). In the above example, the number of motor starts is 10100.

1.11 Calling up module hours

Starting from the Main screen:
- Press Enter button (7) until enter in main menu.
- Select <dAtA> and press Enter button (7) to enter in data menu.
- Scroll up or down buttons (4-8) to <d.3> and hrs is shown.
- Press Enter button (7): the module time appears and is shown in <hrs>:

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In the example shown, the screen shows the unit used (hrs) and the value (5000): the regulator module has been in service during 5000 hours.

1.12 Calling up loading hours

Starting from the Main screen:
• Press Enter button (7) until enter in main menu.
• Select <dAtA> and press Enter button (7) to enter in data menu.
• Scroll up or down buttons (4-8) to <d.4> and running loaded symbol with hrs is shown.
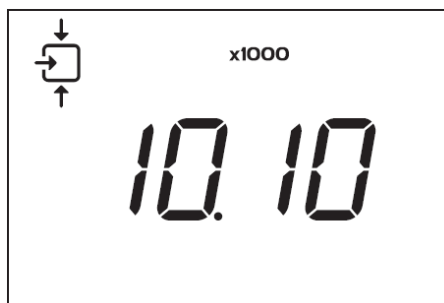• Press Enter button (7): the loading time appears and is shown in <hrs>:

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

1.13 Calling up load solenoid valve

Starting from the Main screen:
• Press Enter button (7) until enter in main menu.
• Select <dAtA> and press Enter button (7) to enter in data menu.
• Scroll up or down buttons (4-8) to <d.5> and running loaded symbol is shown.
• Press Enter button (7): the number of loadings is shown:

![AERO]

This screen shows the number of unload to load actions (x 1 or - if <x1000> lights up - x 1000). In the above example, the number of unload to load actions is 10100.

1.14 Calling up/resetting the service timer

Starting from the Main screen:
• Press Enter button (7) until enter in main menu.
• Select <dAtA> and press Enter button (7) for enter in data menu.
• Scroll up or down buttons (4-8) to <d.6> and running loaded hours is shown.
• Press Enter button (7): the loading time appears and are shown in <hrs>:

This screen shows the unit used <hrs> (or <x1000 hrs>) and the value <1191>. In the example shown, the compressor has run 1191 hours since the previous service.
For reset timer contact your dealer.

Resetting the service timer

After servicing, the timer has to be reset:
• Scroll to register screen <d.6> and press Enter button (7) until screen <PASS> blinking.
• Scroll up or down buttons (4-8) to insert a password and then press Enter button (7).
• Scroll up or down buttons (4-8) to shown <rES.Y> and press Enter button (7) to reset.

1.15 Calling up/modifying pressure band selection

Starting from the Main screen:
• Press Enter button (7) until enter in main menu.
• Select <ProG> and press Enter button (7) to enter in data menu.
• After <PASS> blinking confirm 0 with Enter button (7).
• Scroll up or down buttons (4-8) to <reG.P> for regulation pressure and press Enter buttons (7) to enter in submenu.
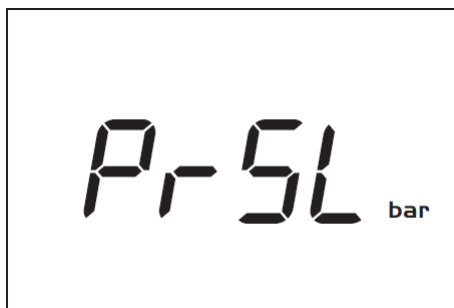
• Press Scroll up or down button (4-8) to <PrSL> is shown and then press Enter button (7). Pressure band 1 (<SEL.1>) is shown on the display. Button (4-8) can be used to scroll to pressure band 2 (<SEL.2>).

• Press Enter button (7) on the desired pressure band.

1.16 Calling up modifying pressure band settings

Starting from the Main screen:
• Press Enter button (7) until enter in main menu.
• Select <ProG> and press Enter button (7) to enter in data menu.
• After PASS blinking confirm 0 with Enter button (7).
• Scroll up or down buttons (4-8) to <reG.P> for regulation pressure and press Enter button (7) to enter in 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) to (<LPr.1> / <uPr.1> / <LPr.2> / <uPr.2>) to select parameter to see or modify and press enter button (7).
•The actually used pressure is shown, than scroll up or down buttons (4-8) to set pressure value and press Enter button (7) to confirm, unit blinking and saved into memory.

1.17 Calling up modifying Number of hourly compressor Activation

Is possible to change number of hourly compressor activations. If desired, the function can be changed. <u>Contact your dealer.</u>

Starting from the Main screen:
• Press Enter button (7) until enter in main menu.
• Select <ProG> and press Enter button (7) to Enter in data menu.
• After <P ASS> blinking confirm 0 with Enter button (7)
• Scroll up or down buttons (4-8) to <reG.P> for regulation pressure and press Enter button (7) to Enter in submenu.
• Press Scroll up or down buttons (4-8) to <nHCA> is shown and then press Enter button (7). The actually value is a number of hourly compressor activation. Is possible settings value from 0 to 25.
• Scroll up or down buttons (4-8) to set value and press Enter button (7) to confirm, value blinking and saved into memory.

1.18 Calling up modifying the unit of temperature

The unit of temperature measurement can be only changed when compressor is stopped.
Starting from the Main screen:
• Press Enter button (7) until enter in main menu.
• Select <ProG> and press Enter button (7) to enter in data menu.
• After PASS blinking confirm 0 with Enter button (7).
• Scroll up or down buttons (4-8) to <diSp> for display settings and press Enter button (7) to enter in submenu.
• Scroll up or down buttons (4-8) to <tEMP> is shown 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 unit of temperature and press Enter button (7) to confirm, unit blinking and saved into memory.

1.19 Calling up modifying the unit of pressure

The unit of pressure measurement can be only changed when compressor is stopped.
Starting from the Main screen:
• Press Enter button (7) until enter in main menu.
• Select <ProG> and press Enter button (7) to enter in data menu.
• After PASS blinking confirm 0 with Enter button (7).
• Scroll up or down buttons (4-8) to <diSp> for display settings and press Enter button (7) to enter in submenu.
• Scroll up or down buttons (4-8) to <PrES> is shown 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 unit of pressure and press Enter button (7) to confirm, value blinking and saved into memory.

1.20 Calling up modifying time backlight

The backlight will be activated after pressing any button and for the interval of time set in the parameter <bC.LG> (in sec).
For change, starting from the Main screen:
• Press Enter button (7) until enter in main menu.
• Select <ProG> and press Enter button (7) to enter in data menu.
• After PASS blinking confirm 0 with Enter button (7).
• Scroll up or down buttons (4-8) to <diSp> for display settings and press Enter button (7) to enter in submenu.
• Scroll up or down buttons (4-8) to <bC.LG> is shown and press Enter button (7). The actually time of backlight is shown.
Is possible settings value from 0s to 120s.
• Scroll up or down buttons (4-8) to set time of backlight and press Enter button (7) to confirm, value blinking and saved into memory.
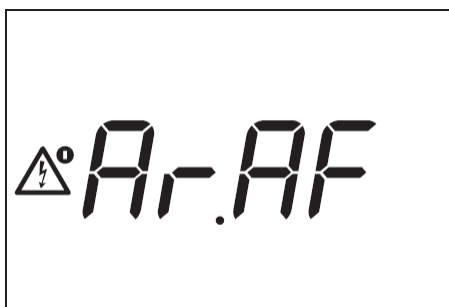
1.21 Activating automatic restart after voltage failure

Description

This function allows the compressor to restart automatically after voltage failure. The activation can be done only by your dealer. Please contact him for further details.
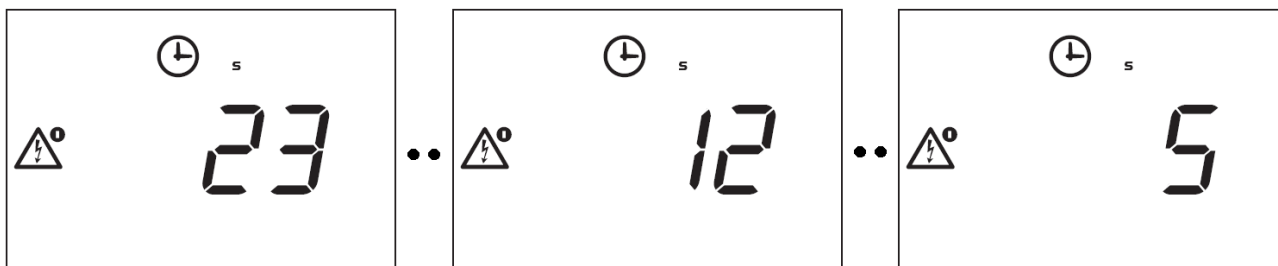
Starting from the Main screen:
• Press Enter button (7) until enter in main menu.
• Select <ProG> and press Enter button (7) to enter in data menu.
• After PASS blinking insert a code and confirm with Enter button (7).
• Scroll up or down buttons (4-8) to <CtrL> for control settings and press Enter button (7) to enter in submenu.
• Scroll up or down buttons (4-8) to <Ar.Af> is shown and press Enter button (7). The actually state of automatic restart after voltage failure is shown.
• Scroll up or down buttons (4-8) for active/deactivate this function from <YES> or <no> and press Enter button (7) to confirm, state blinking and saved into memory.

In this submenu <CtrL> is possible to setting lead time of automatic restart after power failure.
• Scroll up or down buttons (4-8) to <Ar.d> is shown and press enter button (7). The actually delay time of automatic restart after voltage failure is shown. Is possible to set delay time from 30s to 240s.
• Scroll up or down buttons (4-8) for change this value and press enter button (7) to confirm, state blinking and saved into memory.

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.

1.22 Activating Local / remote start/stop

Description
Once this parameter is activated, the physical digital input can be used to switch the compressor between start and stop
Please contact your dealer for activation.

The activation of local/remote control can be only changed when compressor is stopped.
Starting from the Main screen:
• Press Enter button (7) until enter in main menu.
• Select <ProG> and press Enter button (7) to enter in data menu.
• After PASS blinking insert a code and confirm with Enter button (7).
• Scroll up or down buttons (4-8) to <CtrL> for control settings and press Enter button (7) to enter in submenu.
• Scroll up or down buttons (4-8) to <Lo.rE> is shown and press Enter button (7). The actually of remote start stop is shown.
• Scroll up or down buttons (4-8) for active/deactivate this function from <YES> or <no> and press Enter button (7) to confirm, state blinking and saved into memory.

1.23 Calling up Maintenance warning

This function allows to change maintenance. Please contact your dealer.

Starting from the Main screen:
• Press Enter button (7) until enter in main menu.
• Select <ProG> and press Enter button (7) to enter in data menu.
• After PASS blinking insert a code and confirm with Enter button (7).
• Scroll up or down buttons (4-8) to <TiMr> for timer settings and press Enter button (7) to enter in submenu.
• Scroll up or down buttons (4-8) to <srV.d> is shown and press Enter button (7). The actually time of maintenance is shown.
• Scroll up or down buttons (4-8) for increase/decrement value of time and press Enter button (7) to confirm, value blinking and saved into memory.

1.24 Activating password protection

Important settings such as the setting of the service timer, pressure band setting, control mode settings, can be protected by a password.
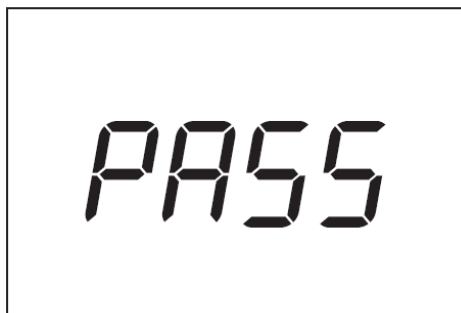

Example blinking PASS screen.

• After <PASS> blinking is possible insert password, for standard users is 0 and press enter buttons (7) to confirm.

1.25 Keyboard Lock

Keep both UP + DOWN buttons pressed more than 3s to lock and unlock the keyboard.
• The display will show the label "LocK" blinking for 3s if the keyboard has been locked;
• The display will show the label "UnLo" blinking for 3s if the keyboard has been unlocked.
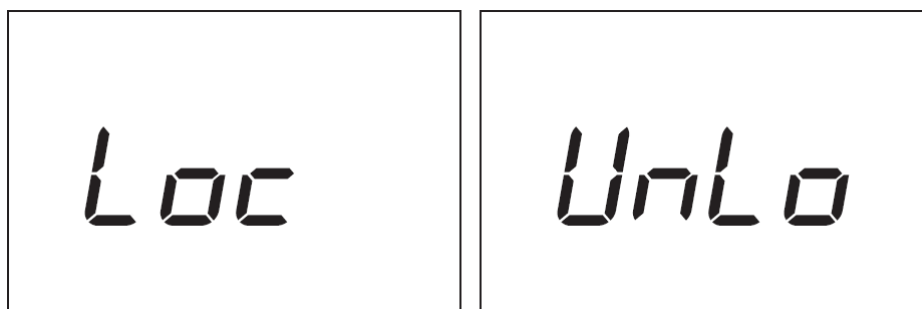
Example Lock/unlock screen.

Table of contents

ALUP Technical Dept