3 Controller

3.1 Control panel

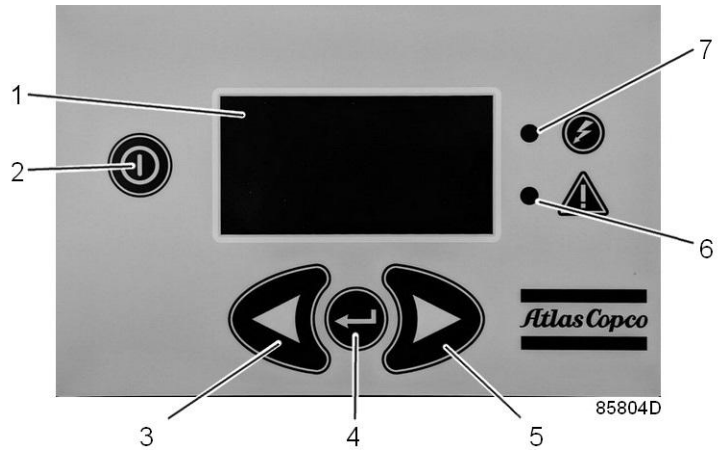
General description

The controller automatically controls and protects the dryer, i.e.:

- Keeping the pressure dew-point stable.
- Monitoring switches to ensure safe operation and stopping the dryer whenever necessary.
- Restarting the dryer when required.

In order to control the dryer and to read and modify programmable parameters, there is a control panel provided with:

- LEDs indicating the status of the dryer.
- A display indicating the operating conditions or a fault.
- Keys to control the dryer and to access the data collected.
- Buttons to manually start and stop the dryer.



Reference	Description
1	Display
2	On/off button
3	Left button
4	Enter button
5	Right button
6	Alarm LED
7	Power on LED

Button functions

Press any button to light up the display.

Button	Normal operation	Alarm status	Selection menu	Alarms browser	Parameters editing	Counters and service menu
On/off	Starts/stops the dryer					
Left	No action	No action	Moves the cursor upwards cyclically	Displays the previous alarm cyclically	• Selects the parameter • Decrements the data value	No action
	With the PDP option available, you can press the left or right button to show a graph of the PDP.					
Right	No action	No action	Moves the cursor downwards cyclically	Displays the next alarm cyclically	• Selects the parameter • Increments the data value	No action
	With the PDP option available, you can press the left or right button to show a graph of the PDP.					
Enter	Displays the selection menu	Cancels the displayed alarm for one minute (alarm acknowledgment)	Selects the pointed menu and activates it	• Returns to the selection menu • Cancels the service alarm when pressed for 5 seconds	• Starts the parameter editing • Selects the numerical data digits • Confirms the modified value • Returns to the selection menu when pressed for 2 seconds	Returns to the selection menu

LED functions

LED	Color	Description
Power on	Green	The controller is turned on.
Alarm	Blinking red	The controller is in alarm condition.
	Fixed red	The controller needs technical assistance.

3.2 Main screen

During normal operation, the following image is displayed:

- In the upper right area, the current working phase countdown and the measured dew point are displayed.

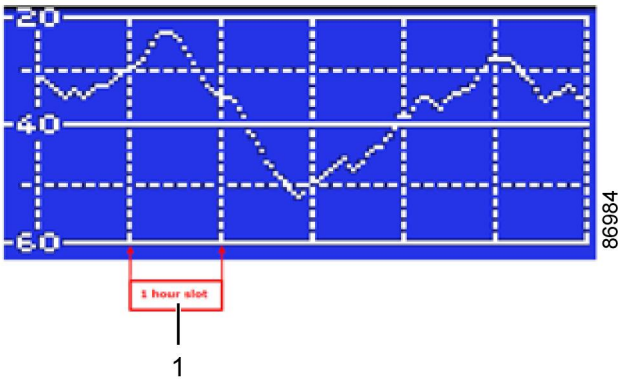
  When the pressure dew point (PDP) sensor is not enabled, the dew point is not displayed. When the PDP sensor is enabled but either not connected or defective, no dew point value is displayed (four dashes substitute the measure).
- In the lower area, the current working phase of each vessel is displayed.
- In the upper left area of the screen, an animated icon is present:

Icon	Description
	Rotating arrow Displayed when the dryer is in its working phases.
	Stationary vertical bars Displayed when the dryer is in the FREEZE status.
	Stationary square Displayed when the dryer is stopped.

The various working phases are:

Phase	Text displayed on screen	Translation
Stop	STOPPED	STOPPED
Shifting	SHIFTING	SHIFTING
Adsorbing	ADSORBING	ADSORBING
Pressure relief	DEPRESS	DEPRESS
Regeneration	REGENERAT	REGENERAT
Pressure equalize	EQUALIZE	EQUALIZE
Freeze	FREEZE	FREEZE
Standby	STANDBY	STANDBY
Blowing off	BLOW OFF	BLOW OFF

When a PDP meter is connected, pressing left or right arrow will show a graph of the measured values from the last hours.



Reference	Description
1	1 hour slot

3.3 Selection Menu

When you press Enter in the normal operation main screen (not during alarm!), you will see the following selection menu:

Press Left or Right to navigate to the required menu item and press Enter to select.

	Selection	Translation	Description
1	Alarms	Alarms	Alarms browser
2	Settings	Settings	Parameters list
3	Counters	Counters	Counters status
4	Service	Service	Service status
5	Exit	Exit	Back to the main display

Select item 5 (Exit) to return to the main screen or wait approximately 30 seconds.

3.4 Alarm screen

When there is an alarm, you will see the following image on your screen:

When one or more alarms are active, the alarm screen overrides the main screen.

In the upper right area, the current alarm number and the total active alarms number are displayed.

In the lower area, the current alarm description is displayed.

If more than one alarm is active, the fault messages are shown every 2 seconds.

Pressing Enter acknowledges the alarm currently being displayed.

If all the alarms have been cleared, you will return automatically to the main screen.

After one minute, if the acknowledged alarm is still active, the alarm display is shown again.

The icon in the upper left area blinks.

Module involved	Cause	Message on the display	How to clear the alarm	Alarm LED status
Pressure Dew Point (PDP) sensor	PDP above or equal to the minimum value of the PDP range	PDP is not connected	Verify if the PDP sensor is correctly connected and if it is not damaged.	Blinking
	PDP lower than or equal to the minimum value of the PDP range	PDP measure is wrong	Verify if the PDP sensor is correctly connected and if it is not damaged.	Blinking
	PDP sensor supply voltage < 20 V	PDP supply is in fault	Verify if the sensor supply voltage is correct.	Blinking
	PDP more than 10 °C (18 °F) above the desired setpoint	PDP meas > the setpoint	The alarm is automatically cleared when the desired dew point is reached.	Blinking
Service	Running hours > programmed service hours A, B or C	Running hours > service hours X (X = A, B or C)	Perform the requested maintenance (A, B or C). Next, enter the Alarm menu, select Service Alarm, press the Enter button and keep it pressed during minimum 5 seconds.	Blinking
24 V supply	Supply voltage < 18 V	24 V supply is in fault	Contact your supplier	Blinking

Module involved	Cause	Message on the display	How to clear the alarm	Alarm LED status
Controller	Controller hardware fault	Internal error	Reset all settings to the default value. Switch off the controller and switch it on again. Contact your supplier if the fault persists.	Lit continuously

Table 1: Possible alarm causes

When an alarm is active, relay K01 and contacts 9 and 10 of relay X15 are closed. When all the alarms are cleared, K01 is open.

Acknowledgement of the alarms does not affect the status of K01 or the status of the red LED.

See section *Electric diagram*.

3.5 Editing parameters

During parameters editing (see section *Selection menu*), you will see a similar image on your screen:

In the upper right area, the current parameter number and the total modifiable parameters number are visualized.

In the lower area, the current parameter description and value are displayed.

Only the unprotected parameters can be displayed and modified. Examples of settings that are accessible to the end user are: Automatic restart after voltage failure (ARAVF), language and the display time-out.

Pressing Enter for at least 2 seconds ends the editing procedure. The display will return to the selection menu.

Editor button functions

Button	Function
Left	• Selects the previous parameter • Decrements the value
Right	• Selects the next parameter • Increments the value

Button	Function
Enter	• Starts the parameter editing • Selects the numerical data digits • Confirms the modified value • Pressing the Enter button for at least 2 seconds ends the editing procedure. The display will return to the selection menu.

How to modify a parameter

Step	Button involved	Action
1	Right or left	To select the parameter to be modified
2	Enter	Starts the modification procedure • If the parameters is a selection value (e.g. a language) or a boolean value (On or Off), go to the following step. • If the parameters is a numerical value, press the Enter button repeatedly as required.
3	Right or left	Modifies the selected parameter • If the parameter is a selection value (e.g. a language), pressing Right increments and pressing Left decrements the selection within the allowed range. • If the parameter is a boolean value (On or Off), Right forces the data to ON, Left to OFF. • If the parameters is a numerical value, Right increments and Left decrements the selected digit.
4	Enter	• For numerical data, Enter moves the cursor to the upper digit (see step 2). If the digit is the last one, Enter closes the editing phase. • For selection or boolean values, Enter closes the editing phase.

Modifiable parameters

Following parameters can be modified without password:

Parameter number	Parameter name	Description	Default value	Allowed range
1	Automatic restart after voltage failure (ARAVF)	Selects if the controller will restart automatically or not in case of power failure.	Off	On or Off
2	Language	Selects the language of the displayed messages.	English	English, French, Spanish, Italian, Portuguese, German, Russian
3	Display timeout		5 min	1 — 999 min

Parameter number	Parameter name	Description	Default value	Allowed range
4	PDP control	On: The dryer tries to follow the set point. Off: only display the PDP. The dryer will run at the lowest possible dewpoint.	Off	On or Off
5	Dewpoint setpoint	Fixes the target for the PDP.	Based on the model of dryer: • -40 °C (-40 °F) • -70 °C (-100 °F)	Maximum value: -10 °C (+14 °F) Minimum value: • -40 °C (-40 °F) • -70 °C (-100 °F) based on the model of dryer.
6	PDP temp in °F	Selects the temperature.	Off	On or Off

All other parameters are protected by a password and need no modification.

PDP Sensor retrofit

For the PDP sensor retrofit kit number, refer to part list.

To access the PDP settings:

1. Go to main screen and press Enter to access the menu.
2. Select **Settings**
3. Go to **Password** and enter password: **4321**

The password is recorded from right to left.

To edit the PDP parameters:

1. In **Settings**, go to **PDP enable**

   Set parameter: ‘ON’
2. Go to parameter **PDP control**

   Choose preferred behavior.
3. Go to parameter **Dewpoint setpnt**

   Modify and confirm preferred PDP sensor setpoint.
4. To go back to the main screen, press Enter for 2 seconds. The main menu will appear. Press Exit and the main screen will display.