5. GENERAL DESCRIPTION

5.1 Schulz Interfaces
Schulz uses high-performance programmable logic controllers on its control interfaces, ensuring its customers can experience the best solutions related to compressed air.

5.2 Control Net Interface
Control Net interface is a product designed to meet the most demanding applications in the field of rotary-type positive-displacement compressors. It uses a powerful digital signal processor that ensures excellent operation with an excellent cost-benefit ratio.

5.3 Control Net RS485 Card
It has two Schulz RS485 communication cards. Once installed, the RS485 communication port can be used via the exclusive 485 protocol or through Modbus RTU (open protocol).

5.4 Ethernet Card
Control Net interface has a standard Ethernet card for compressors above 40HP and optional for smaller ones. Once installed, ECO can be used to perform Ethernet communication using the Modbus TCP/IP protocol.

5.5 Optional XPM card
This optional item allows you to increase the number of digital or analog inputs and digital or relay outputs. It is a DIN rail mounted device that communicates with the Control Net interface through an exclusive 485 protocol.

5.6 Optional Network Card
This optional item allows you to use network protocols not supported directly by the Control Net interface (for example, Profibus or DeviceNet - further details on request).

6. USER INTERFACE

6.1 Keyboard

FIGURE 6.1 - KEYBOARD

Table 6.1 - Keyboard	
Keys	Functions
	Start
	Stop
	Reset
	Enter
	Up or increase
	Down or decrease
	Exite

6.2 Graphic Display
The graphic display of the interface was developed in order to facilitate its use and understanding:

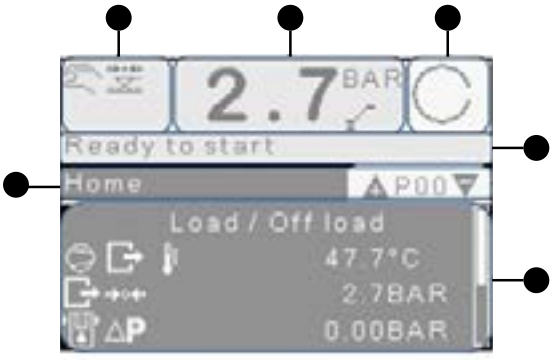


FIGURE 6.2 - GRAPHIC DISPLAY

1 - Compressor status indication symbols
2 - Outlet pressure and load or relief indication
3 - Compressor status
4 - Compressor status
5 - Menu and navigation data
6 - Menu and navigation number

After a certain idle period, the display will reduce its backlight in order to save energy. The backlight is turned on again when any key is pressed. P00 is the default screen that appears when the machine is powered up and after an idle period.

Use the keys ▲ ▼ to navigate between the menus.

When applicable, the menu header will change from the default screen to another with additional information.

For example: P00.02

Load / Relief
Control Mode

6.3 User Account Control

Control Net interface is provided with a registered "ADMIN" standard user account. Up to 10 other users can be registered. Only the "ADMIN" user can perform additional settings in other accounts. The standard user can display menus from P00 to P09. These menus can't be edited.
All other accounts are protected by a 4-digit password, if a password is not entered correctly the standard user will be loaded. The user name "ADMIN" can't be changed. Other user names can be changed by an administrator user.
The administrator may or may not allow access to the menus. Menu access settings can be defined as: "access denied" so the menu is invisible for the user, "read-only" so the user can display menu information, but can't edit it and "full access", where the user can display and edit menu information.

To return to the standard user, navigate to parameter 01 in menu P09 (P09.01) "standard user" and press ↵ so the standard user becomes the active user

IMPORTANT

This manual describes the functions of all menus. If the menus are not visible, check the account access level currently active.

IMPORTANT

Always check which user is active before navigating between menus, evaluating menu access restriction settings. After a long idle period, the interface will automatically return to the standard user and the P00 menu.

Table 6.3 - Item Caption

Item	Edition
P09.03~12.01	Username
P09.02~12.02	4-digit password
P09.02~12.03	Language
P09.02~12.04	Time format
P09.02~12.05	Date format
P09.02~12.06	Pressure unit
P09.02~12.07	Temperatureunit
P09.03~12.08 ~ 18	No edition
P09.03~12.19 ~ 40	Access: Not available Read only access Edit access

7. GENERAL OPERATION AND CONTROL MODES

Discharge pressure is the variable that regulates product operation after the start button is pressed. The Control NET electronic interface will check the starting conditions and start the compressor if all these conditions are met. If any of the conditions required for starting are not met, the equipment will not start and a message will be displayed on the main interface screen.

If any operating condition is not met (e.g. discharge pressure is over relief pressure) the product will enter into started mode, the main motor will not start, the compressor will enter in standby mode and a message will be shown on the main screen. When a load request is made, the main motor will perform the starting procedure. During motor start-up and load time (configurable), the compressor will remain in relief to allow the motor speed to stabilize. The load time can be disabled if necessary. Immediately after load time has elapsed, the load relay output is energized and the compressor is loaded. If the discharge pressure reaches the relief pressure value, or a remote relief command is received, the load relay output will be de-energized and the product will operate in relief mode during relief time (configurable), before the main motor shuts down and the compressor enters standby mode. The equipment will operate under load again if the pressure drops below the load pressure before relief time ends. If the product is already in standby mode, a new motor starting sequence will be required before the on-load operation.

Whenever the main motor stops, initiated by a stop command or via standby mode, the cooling time (configurable) is started. If a start request is made during cooling time, the compressor will enter standby mode until cooling time is completed. If the load request is still present in standby mode, the main motor will only start after cooling time has ended. For compressors where internal pressure measurement is enabled, a minimum internal pressure can be set to prevent the motor from starting even after cooling time. If after two minutes the internal pressure does not fall below the set minimum pressure, a protection will be triggered and the compressor will shut down. Shortly after the equipment enters relief mode, the reload time (configurable) is started to prevent the product from on-load operation too soon. This time can be disabled if necessary.

Normal compressor operation is terminated if the stop button is pressed, a remote stop command is received or a protection is active. When stopped manually or remotely, the load relay output is de-energized. The main motor continues to run during stoppage time (configurable). This time can be disabled if necessary.

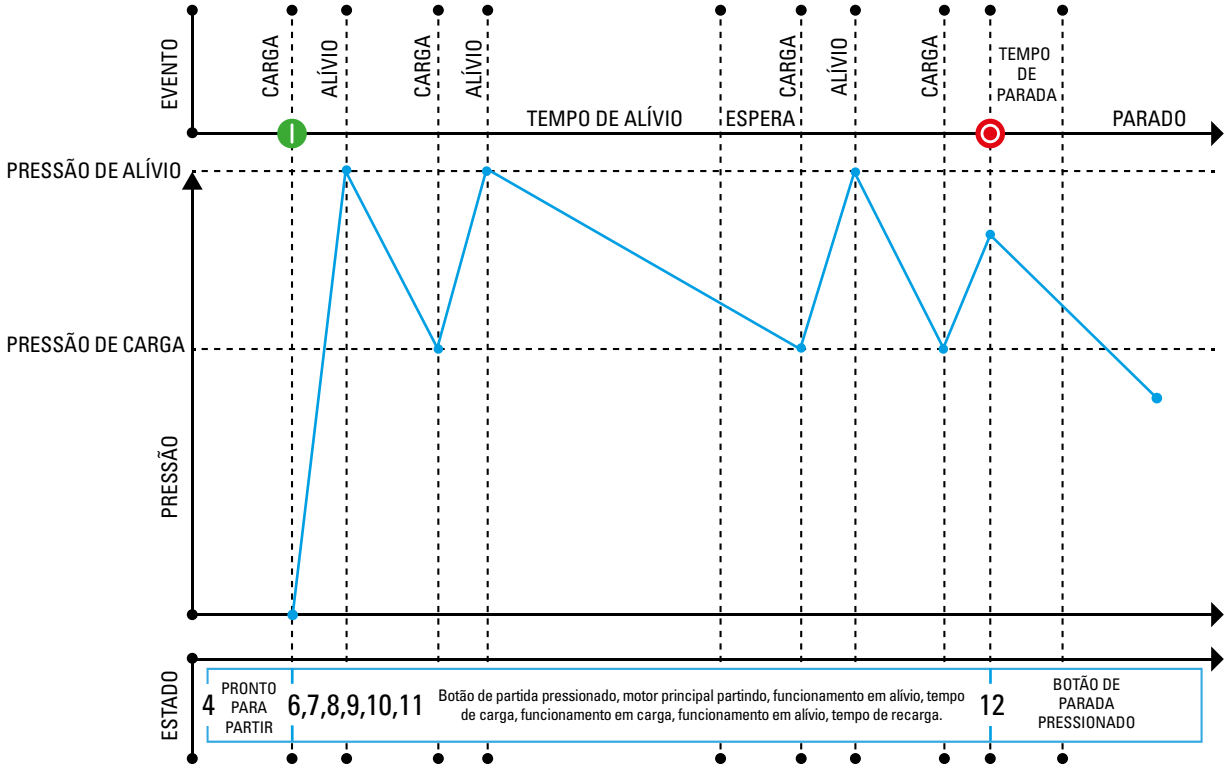
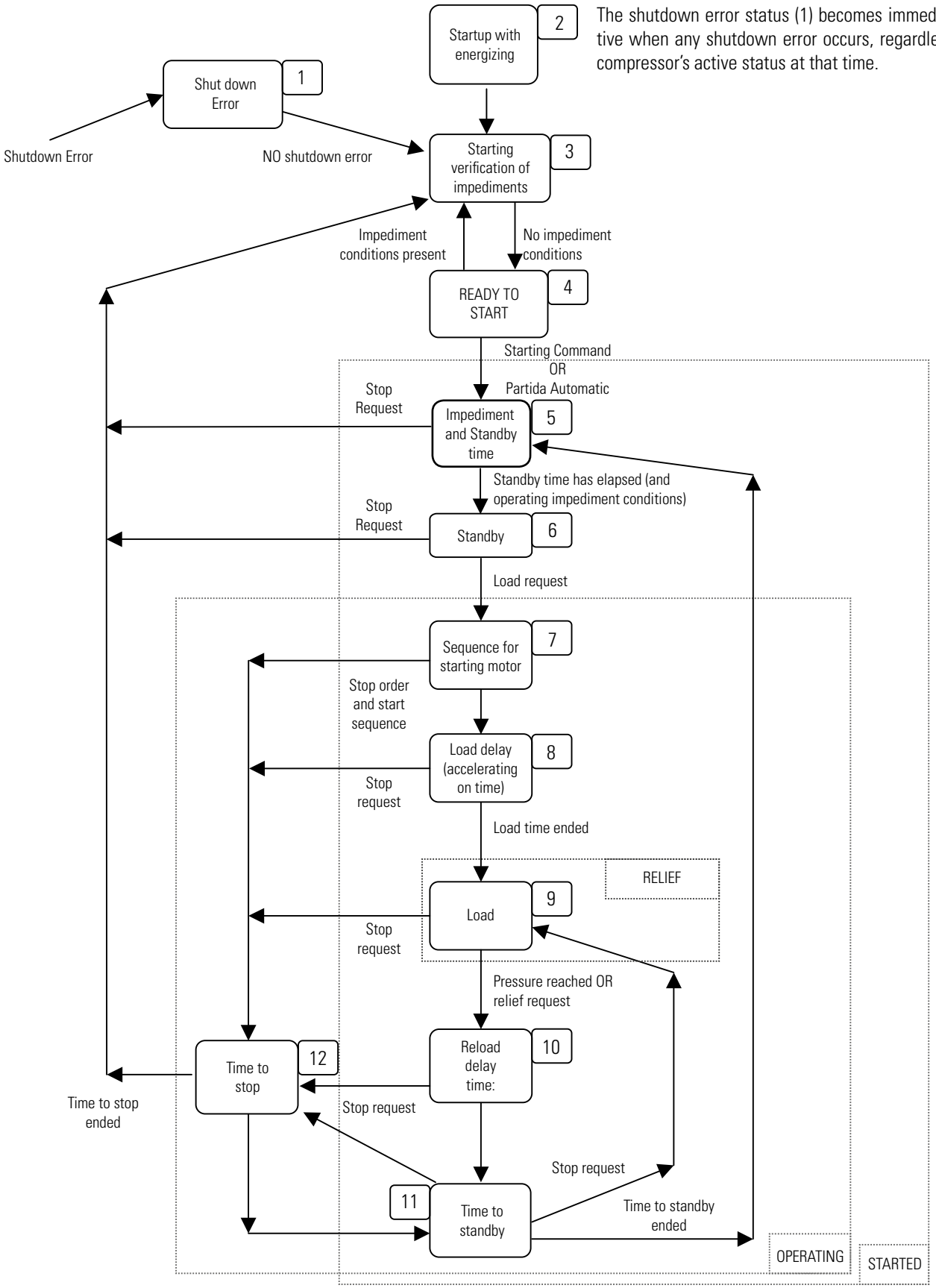


FIGURE 7.1 - General Operation

7.1 CONTROL NET – STATUS DIAGRAM



The shutdown error status (1) becomes immediately active when any shutdown error occurs, regardless of the compressor's active status at that time.

7.2 LOAD / RELIEF

In this operating mode, the unit will operate on load or in relief between the start and stop times. When operating in relief for a period longer than relief time the main motor will stop and the product will enter into standby mode. When the pressure reaches a lower value than load pressure, the main motor will start automatically.

7.3 CONTINUOUS OPERATION

The equipment will maintain the main motor running continuously from start time until a stop request is triggered, regardless of whether the compressor is under load or in relief.

7.4 PRESSURE DROP

Two set periods; "on-load period" and "relief period" are used to select the product's operating mode when the discharge pressure is higher than the relief pressure. These two periods are adjusted according to the maximum number of starts per hour allowed for the main motor. The on-load period starts every time the compressor is switched on. The on-load period will be as long as the time the motor is running and ends when the compressor enters into standby mode. The relief period starts each time the compressor goes into relief. It lasts the entire relief time and also while the compressor is in the standby mode. It ends the moment the compressor goes into on-load. Each transition is separated by the product's cooling time.

The following transition cycles are allowed:

- The discharge pressure drops to a value below the load pressure, the compressor goes into on-load regardless of its previous operating mode. If the main motor is stopped it will only start after cooling time.

- If the discharge pressure reaches a value higher than the relief pressure in a time longer than the "relief period", the compressor will enter into standby mode after the relief time set on the interface has elapsed.

- If the discharge pressure reaches a value higher than the relief pressure in a time shorter than the "relief period" the relief time is calculated by taking into account the pressure drop time of an earlier load cycle as follows:

- If the pressure drop time (time the discharge pressure takes from relief pressure to load pressure) is greater than the "relief period", the compressor enters into standby mode immediately after the relief time set on the interface.

- If the pressure drop time is shorter than the "relief period", the compressor goes into relief, with the motor still running, however, in this case the relief time will not be the value set on the interface, but rather the "relief period"..

7.5 DYNAMIC RELIEF CONTROL

The relief time is dynamically increased or decreased by the dynamic relief control in relation to the maximum number of starts by hour allowed for the main motor. The motor's number of starts by hour is measured by the Control Net interface. A very large number of motor starts causes the relief time to increase in the same way that a small number of starts causes the relief time to decrease.

7.6 VARIABLE SPEED CONTROL

Variable speed control creates a PID control sent to a frequency inverter using the analog output (4-20mA) in order to vary the speed of motor's rotation and maintain the discharge pressure of the compressor as the set value (load pressure).

Variable speed control is used to maintain the compressor discharge pressure at the load pressure value. If the pressure rises to the relief pressure, the load solenoid valve is de-energized and the compressor goes into relief. While the compressor remains in relief the motor rotation will remain at a preset value, usually equal to the minimum operating rotation. If the equipment remains in relief for a period longer than relief time, the main motor will stop and the compressor will enter into standby mode. When the pressure falls below the load pressure, the motor will start, if it is in standby mode, the load solenoid valve will be energized and the motor will operate throughout its speed range.

If connected to the Schulz Control compressor manager and the compressor room has more than one variable speed compressor, any FLEX compressor selected as a "base compressor" will operate at the optimum speed set on its interface. The FLEX compressor set as the main compressor will use its entire speed range to perform pressure control. In addition, the working pressure of the variable speed products will be automatically modified to the pressure set on the Control manager. Therefore, up to 12 variable speed compressors can operate in a coordinated manner in the same air network, using exactly the same pressure control.

7.7 ENABLE FORCED RELIEF

When activated, hold the "START" button pressed and use the "DOWN" button to force the compressor to switch from on-load status to in-relief status. The product will not go into on-load until the forced relief condition is removed. To remove the forced relief condition: simultaneously press the "START" and "DOWN" buttons and the compressor will return to normal operating conditions.

8.1 Navigation Menu

The menu tabs are arranged sequentially and in a continuous loop. The graphic interface is switched to identify the on-screen navigation location (vertical scroll bar indication). In addition, the menu tabs extend to identify the navigation location.

Exemple:

Table 8.4 - Item caption	
Item	Edition
P02	Menu: Usage
P02.10	VSD average RPM
P02.10.01	Average RPM 1 – 25%

IMPORTANT

Menu items are visible only when the device is properly configured! The parameters of each menu are indexed sequentially. If a parameter is not showing on the screen check the configuration of the active account.

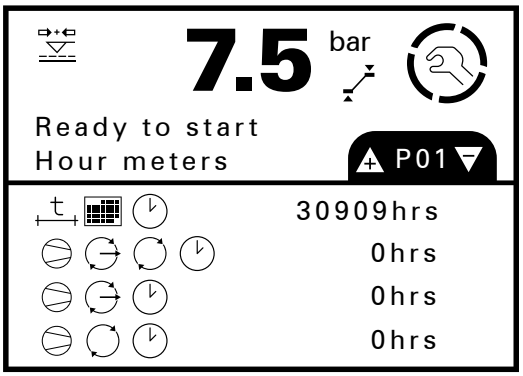


Figure 8.4.1

Use the keys ↵ C to enter and exit a certain menu. Entering the parameters area of a menu, the first parameter can be modified.

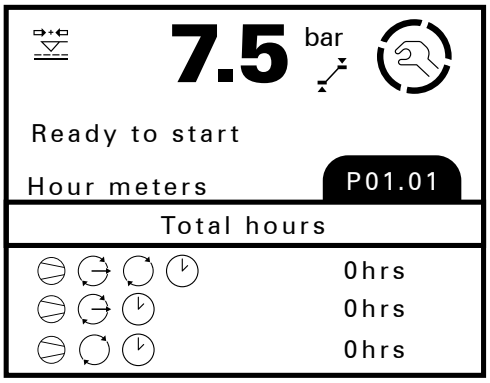


Figure 8.4.2

Use the buttons ▲ ▼ to navigate between parameters. As previously mentioned, the parameters are shown vertically in a continuous loop. For example, the figure below shows a user who has navigated to parameter 06 of menu P01.

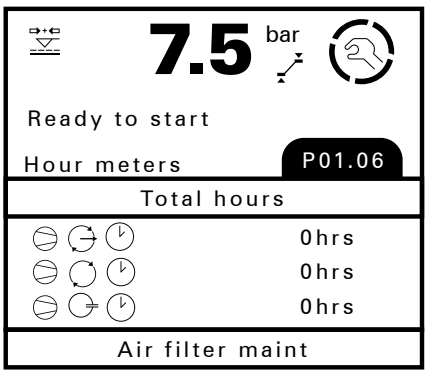


Figure 8.4.3

To change an accessible and editable menu item, navigate to it and press the key ↵

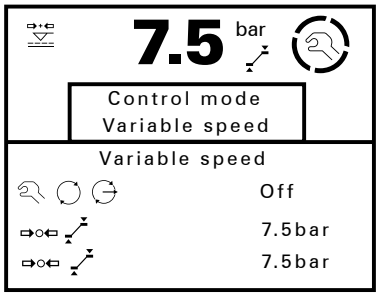


Figure 8.4.4

An edit window will appear. Use the buttons ▲ ▼ to select one of the possible options. Hold the button ▲ to increase the navigation speed. Press ↵ to confirm the selected value, C to exit the edit window. With the active edit window hold down ↵ to toggle between the value and the parameter text.

8.5 MENU MAP

Obs: Screens may vary depending on the setup that was performed.
↵ Press ENTER to access the sub-menus for each item (Ex.: P02.10.01).

Table 8.5.1 - Read-only menu					
P00 – Home	P01 – Hour Meters	P02 – Usage	P03 – Errors list	P04 – Event List	P08 – Message Codes
01 Active alarm ↵	01 Total hours	01 Equip Status	01 Error 1 ↵	01 Event 1 ↵	Refer to this manual
02 Control mode	02 HRS load/relief	02 HRS load/relief	-	-	
03 P00.03 (configurable)	03 Hours under load	03 Part MTR last HR	50 Error 50 ↵	200 Event 200 ↵	
04 P00.04 (configurable)	04 Hours in relief	04 Part MTR last 24h			
05 P00.05 (configurable)	05 Hours stopped	05 Load freq.			
06 Output temperature	06 Air filter maint. (configurable)	06 Load % last hour			
07 Output pressure	07 Oil filter maint. (configurable)	07 Load % last 24h			
08 Internal pressure	08 Separator maint. (configurable)	08 Load time last HR			
09 Differential pressure	09 MTR grease maint. (configurable)	09 Load time last 24h			
11 Main MTR curr	10 Check oil (configurável)	10 Average VSD RPM ↵			
12 MTR fan curr	11 Maint. hours (configurable)				
13 Time	12 Maint. hours (configurable)				
14 Date	13 Maint. hours (configurable)				
15 DST	14 Weekly manutenance				
16 GCI Sequence	15 Anual manutenance				
17 Seq. Cycle - hours	16 Biannual maintenance				
18 XPM GCI pressure					

Table 8.5.2 - Reading and Edit Menu with keyboard or ECO card - 1					
P09 – Access	P10 – Settings EQUIP 1	P11 – Settings EQUIP 2	P12 – Settings EQUIP 3	P13 – Settings FLEX	P14 – Motor Protection
01 Standard User ↵	01 Control mode* ↵	01 Transition Y/D ↵	01 Reset parameters*↵	01 VSD control mode	01 Main MTR protection ↵
02 Administrator ↵	02 Perm load strengh ↵	02 MTR oper min time ↵	02 Save as default* ↵	02 Pres target VSD*	02 Protec MTR fan ↵
03 User 1 ↵	04 Load pressure ↵	03 Load time ↵	03 Use custom SEN*↵	03 MAX VSD Speed* ↵	03 Main MTR Rated Curr ↵
04 User 2 ↵	05 Relief pressure ↵	04 Reload time ↵	04 Output pres range* ↵	04 MIN VSD Speed* ↵	04 Main MTR start ↵
05 User 3 ↵	06 Operating period ↵	05 Relief time ↵	05 Int pres range* ↵	05 OPT VSD Speed* ↵	05 ROT BLOC main MTR ↵
06 User 4 ↵	07 Relief period ↵	06 Min. stop time ↵	06 Reset REG errors ↵	06 VSD Relief Speed ↵	06 DES phase main MTR ↵
07 User 5 ↵	08 PD radiador ↵	07 Cooling time ↵	07 Reset REG event ↵	07 VSD RPM Speed	07 MTR Fan rated Curr ↵
08 User 6 ↵	09 RS485: 1 SETUP ↵	08 Auto switch on ↵	08 HRS total STR ↵	08 VSD Output CURR*	08 Start MTR Fan ↵
09 User 7 ↵	10 RS485: 2 SETUP ↵	09 Open purge ↵	09 Adjust load HRS ↵	09 Const P VSD* ↵	
10 User 8 ↵	12 Starting source* ↵	10 Purge interv ↵	10 Adjust relief HRS ↵	10 Const I VSD* ↵	
11 User 9 ↵	13 Load source*↵	11 Purge in relief ↵	11 Adjust stopped HRS ↵	11 Const D VSD* ↵	
12 User 10 ↵	14 Language ↵	12 Starts by hour ↵	12 Sensor AI3 type ↵	12 VSD Speed %*	
	15 Time ↵	13 Press Dif delay ↵	13 Sensor AI5 type ↵	13 VSD max acl ramp*↵	
	16 Time format ↵	14 Maintenance hours 1 ↵	14 Int pres sens ↵	14 Line lim speed	
	17 DST ↵	15 Maintenance hours 2 ↵	15 GCI available ↵	25 Avoid Hz 1 MIN	
	18 Date ↵	16 Maintenance hours 3 ↵	16 P GCI sensor range		
	19 Date format ↵	17 Maintenance hours 4 ↵	17 Temp fan on		
	20 Backlight ↵	18 Maintenance hours 5 ↵	18 Temp fan off		
	21 Pressure unit ↵	19 Maintenance hours 6 ↵	19 Fan on min time		
	22 Temperature unit ↵	20 Maintenance hours 7 ↵	20 Opening screen		
	23 Pres target VSD ↵	21 Maintenance hours 8 ↵	21 P00.03 SETUP ↵		
		22 Weekly maintenance ↵	22 P00.04 SETUP ↵		
		23 Annual maintenance ↵	23 P00.05 SETUP ↵		
		24 Biannual maintenance ↵	24 Warning alarm		
			27 Dryer type		
			28 Output Dryer off		
			29 Time Dryer on		
			30 Max no. starts		
			31 Stop alarm started		
			32 Ind. start		
			33 Check start delay		

↵PPress ENTER to access the sub-menus - *Editable only when the machine is stopped.
■ Read-only ■ Reading and editing with keyboard or ECO card

Table 8.5.2 - Reading and Edit Menu with keyboard or ECO card - 2					
P15 – Impediments	P16 – Impediments	P17 – Stop alarm Im	P18 – SETUP I/O	P19 – Sensor SETUP	P20 – Diagnosis
01 Operator* ↵	01 Air filter maint ↵	01 Output temperature ↵	01 Function AO* ↵	06 Analog Input 1 (Output Pressure)*↵	01 Digit Input 1* ↵
02 Open door ↵	02 Oil filter maint ↵	02 High TEMP SETUP ↵	02 Function DI2* ↵	07 Analog Input 2* ↵	02 Digit Input 2* ↵
03 Low Temperature ↵	03 Separator maint ↵	03 Output pressure* ↵	03 DI2 OK: NA/NF* ↵	08 Analog Input 3 (Output Temp.)* ↵	03 Digit Input 3* ↵
	04 MTR grease maint ↵	04 PRESS INT EQUIP* ↵	04 Function DI3* ↵	09 Analog Input 5 (Temp sec)* ↵	04 Digit Input 4* ↵
	05 Check oil ↵	05 SETUP aum PRESS* ↵	05 DI3 OK: NA/NF* ↵		05 Digit Input 5* ↵
	06 Maintenance hours ↵	06 DIFFER Press ↵	06 Function DI4* ↵		06 Digit Input 6* ↵
	07 Maintenance hours ↵	07 Main motor block ↵	07 DI4 OK: NA/NF* ↵		07 Digit Input 7* ↵
	08 Maintenance hours ↵	08 SBRC main motor ↵	08 Function DI5* ↵		08 Digit Input 8* ↵
	09 Weekly maint ↵	09 DESEQ motor phase ↵	09 DI5 OK: NA/NF* ↵		09 Analog Input 1* ↵
	10 Annual maint ↵	10 MTR fan overload	10 Function DI6* ↵		10 Analog Input 2* ↵
	11 Bi-annual maint ↵	11 Phase detection ↵	11 DI6 OK: NA/NF* ↵		11 Analog Input 3 – Ohms*↵
	12 Output temperature ↵	12 Open door ↵	12 Function DI7* ↵		14 Analog Input 4* ↵
	13 Output pressure* ↵	13 Motor fan alarm ↵	13 DI7 OK: NA/NF* ↵		15 Analog Input 5 – Ohms*↵
	14 EQUIP INT PRESS*↵	14 COLD water alarm ↵	14 Function DI8* ↵		18 Relay output 1* ↵
	15 Pressure DIF ↵	15 Oil level alarm ↵	15 DI8 OK: NA/NF* ↵		19 Relay output 2* ↵
	16 High DP separad ↵	16 Belt Maint. ↵	16 Function Relay 5* ↵		20 Relay output 3* ↵
	17 Phase detection ↵	17 Dryer alarm ↵	17 Function Relay 6* ↵		21 Relay output 4* ↵
	18 Starts by hour ↵	18 Water flow ↵	18 Function Relay 7* ↵		22 Relay output 5* ↵
	19 Open door ↵	19 Inverter failure ↵	19 Function Relay 8* ↵		23 Relay output 6* ↵
	20 DP filter CAB ↵	20 High temp main MTR ↵	20 ANA IN 1 FUNCT* ↵		24 Relay output 7* ↵
	21 DP Air filter ↵	21 High output temp ↵	21 ANA IN 2 FUNCT* ↵		25 Relay output 8* ↵
	22 DP oil filter ↵	22 Cool system failure ↵	22 ANA IN 3 FUNCT* ↵		26 Analog output 1* ↵
	23 DP separator ↵	23 Main MTR failure ↵	23 ANA input 3 type* ↵		27 ANALOG Input CT1A* ↵
	24 Motor fan alarm ↵	24 CNF immed stop 1 ↵	24 ANA IN 5 FUNCT* ↵		28 ANALOG Input CT1B* ↵
	25 Air fan alarm ↵	25 CNF immed stop 2 ↵	25 ANA input 5 type* ↵		29 ANALOG Input CT1C* ↵
	26 COLD water alarm ↵	26 CNF immed stop 3 ↵			30 ANALOG Input CT2A* ↵
	27 Oil level alarm ↵	32 Ovl mot inv			31 Frequency L1* ↵
	28 Dryer alarm ↵	33 Ovl mot fan			32 Frequency L2* ↵
	29 ALM DP Pre-FLT ↵	34 High oil temp			33 Frequency L3* ↵
	30 Alarm FTR Air Vent ↵				34 Angle Phase L1* ↵
	31 ALM SEP oil/WAT ↵				35 Angle Phase L2* ↵
	32 High room temp ↵				36 Angle Phase L3* ↵
	33 Alarm Setup 1 ↵				37 Internal test key* ↵
	34 Alarm Setup 2 ↵				38 LED test* ↵
	35 Alarm Setup 3 ↵				39 MIN loop time*
	36 OUTPUT TEMP EQ ↵				40 AVG loop time*
	37 Ovl mot inv fan				41 MAX loop time*
	38 Ovl mot fan				42 Software name*
	39 High oil temp				

Table 8.5.2 - Reading and Edit Menu with keyboard or ECO card - 3			
P21 – Run schedule	P80 - GCI Main menu	P81 - GCI Settings	P82 - GCI Priority
01 Run schedule ↵	01 GCI enabled	01 # compressor GCI ↵	01 Priority COMP1 ↵
02 Business day edition ↵	02 Relief pressure ↵	02 Part GCI Delay ↵	02 Priority COMP2 ↵
03 Reset parameters ↵	03 Load pressure ↵	03 Damping GCI ↵	03 Priority COMP3 ↵
31 Schedule entry ↵	04 INT GCI rotation ↵	04 GCI Tolerance ↵	04 Priority COMP4 ↵
		05 DI1 FCN GCI ↵	05 Priority COMP5 ↵
		06 DI2 FCN GCI ↵	06 Priority COMP6 ↵
		07 DI3 FCN GCI ↵	07 Priority COMP7 ↵
		09 SENS PRESS GCI ↵	08 Priority COMP8 ↵

Table 8.5.3 - Reading and Edit Menu only with ECO card		
P05 - Service Provider	P06 - Interface Data	P07 – Compressor Data
01 Company Name	01 Controller ID	01 Schulz
02 Company Name	02 Serial Number	02 Model
03 Street Name	03 Software ID	03 N. Model Series
04 Street Name	04 Software Version	04 Rated Pres Model
05 City	05 Software Time	05 Rated Power Model
06 State/District	06 Software Date	06 Model Manuf Year
07 Zip Code	07 Software Setup	07 Comp Serial Num.
08 Country	08 Software ©	08 Comp Manuf Year
09 Phone		09 MTR Serial Number
10 Fax		10 MTR Manuf Year
11 E-mail		11 CLR Serial Number
12 Web		12 CLR Manuf Year
		13 PC Inspec Date

↵ Press ENTER to access the sub-menus
■ Read-only ■ Reading and editing with keyboard or ECO card ■ Reading and editing only with ECO card

8.6 MENU DETAILS

Table 8.6.1 - Menu Details

Name	Code	Text	Additional information
Home	**Home page is the default screen that appears after an idle period. This page provides equipment status and conditional information.**		
	P00.01 ↵	Active alarm	Any active alarm will be displayed. If more than one alarm is active, they will be shown in chronological order. Only the active alarm with higher priority will be visible. Active alarms are displayed until the corrective action removes the alarm condition. To view all active alarms, press ↵ Use the keys ▲ e ▼ to navigate and view all active alarms. Press ↵ or C to return to parameter P00.01
	P00.02	Control Mode	Control mode selected
	P00.03	Configurable	Item P00.03 on the menu to be shown on the display, set by user
	P00.04	Configurable	Item P00.04 on the menu to be shown on the display, set by user
	P00.05	Configurable	Item P00.05 on the menu to be shown on the display, set by user
	P00.06	Output temperature	Output temperature in the compressor unit
	P00.07	Output pressure	Output pressure (pressure vessel)
	P00.08	Internal pressure	Internal pressure (air-oil tank)
	P00.09	Differential pressure	Differential pressure value (internal pressure minus outlet pressure). Note: replaced by differential pressure switch, depending on the equipment version.
	P00.11	Main MTR curr	Main motor current reading (optional, requires TC)
	P00.12	MTR fan curr	Fan current reading (optional, requires TC)
	P00.13	Time	Current time reading (as settings)
	P00.14	Date	Current date reading (as settings)
	P00.15	DST	DST indicator enabled
	P00.16	GCI Sequence	Indicator if the GCI manager control is on or off. When on, shows the active sequence.
	P00.17	Seq. Cycle - hours	Decreases the value in Hours when the next GCI sequential event will occur.
	P00.18	XPM GCI Pressure	GCI XPM pressure sensor value (external module, optional, for remote network pressure reading).
Hour Meters	**Hour meter management for maintenance schedules.**		
	P01.01	Total hours	Hour meter. Indicates the number of hours from the commissioning date (start-up).
	P01.02	HRS load/relief	Hour meter. Indicates the number of hours in load/relief.
	P01.03	Hours under load	Hour meter. Indicates the number of hours under load.
	P01.04	Hours in relief	Hour meter. Indicates the number of hours in relief.
	P01.05	Hours stopped	Hour meter. Indicates the number of hours energized and stopped.
	P01.06	Air filter maint. (configurable)	Hour meter. Indicates the number of hours remaining for next maintenance on air filter. Configurable parameter.
	P01.07	Oil filter maint. (configurable)	Hour meter. Indicates the number of hours remaining for next oil filter maintenance. Configurable parameter.
	P01.08	Separator maint. (configurable)	Hour meter. Indicates the number of hours remaining for next maintenance on air-oil separator. Configurable parameter.
	P01.09	MTR grease maint. (configurable)	Hour meter. Indicates the number of hours remaining for next maintenance on electric motor. Configurable parameter.
	P01.10	Check oil (configurable)	Hour meter. Indicates the number of hours remaining for next oil change. Configurable parameter.
	P01.11	Maint. hours (Configurable)	Hour meter. Configurable parameter.
	P01.12	Maint. hours (Configurable)	Hour meter. Configurable parameter.
	P01.13	Maint. hours (Configurable)	Hour meter. Configurable parameter.
	P01.14	Weekly maintenance	Time meter. Weekly Maintenance. Configurable parameter.
	P01.15	Annual maintenance	Time meter. Annual Maintenance. Configurable parameter.
	P01.16	Biannual maintenance	Time meter. Bi-annual maintenance. Configurable parameter.
Usage	**The Usage menu provides information on the compressor's operating routine. This menu provides useful information to assess the operating efficiency of the product or its reliability.**		
	P02.01	Equip Status	Equipment status, indicated as a numerical value (machine status diagram).
	P02.02	HRS load/relief	Hour meter. Indicates the number of hours in load/relief.
	P02.03	Part MTR last HR	Start meter. Indicates the number of motor starts during the last hour.
	P02.04	Part MTR last 24h	Start meter. Indicates the number of motor starts during the last 24 hours.
	P02.05	Load freq.	Load-relief meter. Indicates the number of times the compressor has changed from the relief to load status.
	P02.06	Load % last hour	Load percentage index during the last hour (load / load + relief)*100%.
	P02.07	Load % last 24h	Load percentage index during the last 24 hours (load / load + relief)*100%.
	P02.08	Load time last HR	Load time during the last hour.
	P02.09	Load time last 24h	Load time during the last 24 hours (HH:MM).
	P02.10	Average VSD RPM	Average RPM speed 1-100%.
	P02.10.01	Average VSD RPM%	Average RPM speed 1-25%.
	P02.10.02	Average VSD RPM%	Average RPM speed 26-50%.
	P02.10.03	Average VSD RPM%	Average RPM speed 51-75%.
	P02.10.04	Average VSD RPM%	Average RPM speed 76-100%.

↵ Press ENTER to access the sub-menus

■ Read-Only

Table 8.6.2 - Menu Details			
Name	Code	Text	Additional information
Error List	**The error list can be grouped into 4 categories: warning/caution conditions, immediate stop, start restrictions and operating restrictions. Each error condition has a code with related text. When an error condition occurs, it is immediately stored in the error list, which records the last 50 items. To display additional information, select the error position and press ↵ . Use the arrow keys ▲ and ▼ to navigate.**		
	P03.01 ~ 50	Errors 1 – 50	Error condition code and description
	P03.##.01	Table of Contents	Where ## = 01 to 50, error index
	P03.##.02	Error Code / Description	Where ## = 01 to 50, error message code and short description
	P03.##.03	Time	Where ## = 01 to 50, time when error occurred
	P03.##.04	Date	Where ## = 01 to 50, date when error occurred
	P03.##.05	Equipment Status	Where ## = 01 to 50, equipment status when error occurred
	P03.##.06	Output pressure	Where ## = 01 to 50, equipment output pressure when error occurred
	P03.##.07	Internal pressure	Where ## = 01 to 50, equipment internal pressure when error occurred
	P03.##.08	Unit temperature	Where ## = 01 to 50, unit temperature when error occurred
	P03.##.09	Main motor current	Where ## = 01 to 50, main motor current when error occurred
	P03.##.10	Fan current	Where ## = 01 to 50, fan current when error occurred
Event List	**The event list provides information on conditions for each event, for example, the event of pressing the start button or stop button. Parameter setting or reset to default condition and user access. Events are stored in the equipment's internal memory (up to 200, after it overwrites). Para navegar pelo menu P04.01 pressione ↵ e utilize as setas ▲ e ▼ .**		
	P04.01 ~ 200	Event 1 - 200	Event
	P04.###.01	Table of Contents	Where ### = 001 - 200, event index
	P04.###.02	Event description	Where ### = 001 - 200, event description
	P04.###.03	Time	Where ### = 001 - 200, time when the event occurred
	P04.###.04	Date	Where ### = 001 - 200, date when the event occurred
Service Provider and Equipment Data	**Service provider. Equipment and service provider information is available for query. This information cannot be configured via keyboard (browser and ECO card only).**		
	P05.01	Company name 1	Service provider, company name 1
	P05.02	Company name 2	Service provider, company name 2
	P05.03	Address 1	Service provider, address 1
	P05.04	Address 2	Service provider, address 2
	P05.05	City	Service provider, city
	P05.06	State / Province	Service provider, state and/or county
	P05.07	Zip code	Service Provider, Zip Code
	P05.08	Country	Service provider, country
	P05.09	Phone	Service provider, phone
	P05.10	Fax	Service provider, fax
	P05.11	Email	Service provider, email
	P05.12	Web	Service provider, Web page
	P06.01	Interface ID	Interface identifier (code)
	P06.02	Serial number	Interface serial number
	P06.03	Software ID	Interface software identifier
	P06.04	Software version	Interface software version
	P06.05	Software time	Software version installation time
	P06.06	Software Date	Software version installation date
	P06.07	Software CFG	Software setup identifier
	P06.08	Software ©	Software copyright
	P07.01	Manufacturer's name	Name of equipment's original manufacturer
	P07.02	Model	Equipment model
	P07.03	Interface serial	Model serial number
	P07.04	Rated pressure	Model rated pressure
	P07.05	Rated output	Model rated output value
	P07.06	An	Model manufacturing year
	P07.07	Compressor serial	Compressor serial number
	P07.08	Compressor year	Compressor manufacturing year
	P07.09	Main motor serial	Main motor serial number
	P07.10	Manuf. year main motor	Main motor's manufacturing year
	P07.11	Fan serial	Fan serial number
	P07.12	Fan year	Fan manufacturing year
	P07.13	Insp. tank	Inspection date of pressure vessel (tank)
Message Codes	**Message codes are used to check the compressor information through codes**		
	P08.01 ~ 88	Code / Text	Message code and corresponding text
Access	**This menu is used both to manage the access and to set the domains of each user. Press ↵ and use the arrow keys ▲ and ▼ to change. To confirm press again ↵ . To exit press C .**		
	P09	Active: ########	Displays the active user
	P09.01 ↵	Standard User	Standard user access

↵ Press ENTER to access the sub-menus

Read-Only Reading and editing with keyboard or ECO card Reading and editing only with ECO card

Table 8.6.3 - Menu Details			
Name	Code	Text	Additional information
Acesso	P09.02 ↵	Administrator	Administrator user access
	P09.02.01	Administrator	Not applicable (Reserved)
	P09.02.02 ↵	Admin Password	Administrator user password (this is a 4-digit number)
	P09.02.03 ↵	Language	Setting the administrator user language
	P09.02.04 ↵	Time format	Setting the time format (12 or 24 hours)
	P09.02.05 ↵	Date format	Setting the date format (DD/MM/YYYY or MM/DD/YYYY or YYYY/MM/DD) DD: Day with 2 digits (01 to 31) MM: month with 2 digits (01 to 12) YYYY: year with 4 digits (e.g. 2015)
	P09.02.06 ↵	Pressure unit	Setting the pressure unit (BAR or PSI or kPA or MPA)
	P09.02.07↵	Temperature unit	Setting the temperature unit (ºC or ºF)
	P09.03 ↵	User 1	User 1 setup
	P09.03.01↵	Username 1	Username 1 with 8 alphanumeric digits
	P09.03.02 ↵	User 1 password	User 1 password (it's a 4-digit number)
	P09.03.03 ↵	Language	Setting user 1 language
	P09.03.04 ↵	Time format	Setting the time format (12 or 24 hours)
	P09.03.05 ↵	Date format	Setting the date format (DD/MM/YYYY or MM/DD/YYYY or YYYY/MM/DD) DD: Day with 2 digits (01 to 31) MM: month with 2 digits (01 to 12) YYYY: year with 4 digits (e.g. 2015)
	P09.03.06 ↵	Pressure unit	Setting the pressure unit (BAR or PSI or kPA or MPA)
	P09.03.07 ↵	Temperature unit	Setting the temperature unit (ºC or ºF)
	P09.03.08 ↵	P00 - Home	Blocked, not editable, read-only
	P09.03.09 ↵	P01 - Hour Meters	Blocked, not editable, read-only
	P09.03.10 ↵	P02 - Usage	Blocked, not editable, read-only
	P09.03.11 ↵	P03 - Error List	Blocked, not editable, read-only
	P09.03.12 ↵	P04 - Event List	Blocked, not editable, read-only
	P09.03.13 ↵	P05 - Service Provider	Blocked, not editable, read-only
	P09.03.14 ↵	P06 – Interface data	Blocked, not editable, read-only
	P09.03.15 ↵	P07 - Compressor data	Blocked, not editable, read-only
	P09.03.16 ↵	P08 - Message codes	Blocked, not editable, read-only
	P09.03.17 ↵	P09 – Access	Blocked, not editable, depends on access
	P09.03.18 ↵	P10 - Settings EQUIP 1	Press Enter. Use the 'up' and 'down' arrows to set between 'not available', 'read-only' or 'edit access' (use the sub-menus on the right). Pressing 'Enter' again will store the values (returns to menu P09.03.18).
	P09.03.19 ↵	P11 - Settings EQUIP 1	Press Enter. Use the 'up' and 'down' arrows to set between 'not available', 'read-only' or 'edit access' (use the sub-menus on the right). Pressing 'Enter' again will store the values (returns to menu P09.03.19).
	P09.03.20 ↵	P12 - Settings EQUIP 1	Press Enter. Use the 'up' and 'down' arrows to set between 'not available', 'read-only' or 'edit access' (use the sub-menus on the right). Pressing 'Enter' again will store the values (returns to menu P09.03.19).
	P09.03.21 ↵	P13 - Settings FLEX	Press Enter. Use the 'up' and 'down' arrows to set between 'not available', 'read-only' or 'edit access' (use the sub-menus on the right). Pressing 'Enter' again will store the values (returns to menu P09.03.21).
	P09.03.22 ↵	P14 - Motor Protection	Press Enter. Use the 'up' and 'down' arrows to set between 'not available', 'read-only' or 'edit access' (use the sub-menus on the right). Pressing 'Enter' again will store the values (returns to menu P09.03.22).
	P09.03.23 ↵	P15 - Impediments	Press Enter. Use the 'up' and 'down' arrows to set between 'not available', 'read-only' or 'edit access' (use the sub-menus on the right). Pressing 'Enter' again will store the values (returns to menu P09.03.23).
	P09.03.24 ↵	P16 - Warning alarm	Press Enter. Use the 'up' and 'down' arrows to set between 'not available', 'read-only' or 'edit access' (use the sub-menus on the right). Pressing 'Enter' again will store the values (returns to menu P09.03.24).
	P09.03.25 ↵	P17 – Stop alarm Im	Press Enter. Use the 'up' and 'down' arrows to set between 'not available', 'read-only' or 'edit access' (use the sub-menus on the right). Pressing 'Enter' again will store the values (returns to menu P09.03.25).
	P09.03.26 ↵	P18 – SETUP I/O	Press Enter. Use the 'up' and 'down' arrows to set between 'not available', 'read-only' or 'edit access' (use the sub-menus on the right). Pressing 'Enter' again will store the values (returns to menu P09.03.26).
	P09.03.27 ↵	P19 – Sensor SETUP	Press Enter. Use the 'up' and 'down' arrows to set between 'not available', 'read-only' or 'edit access' (use the sub-menus on the right). Pressing 'Enter' again will store the values (returns to menu P09.03.27).
	P09.03.28 ↵	P20 – Diagnosis	Press Enter. Use the 'up' and 'down' arrows to set between 'not available', 'read-only' or 'edit access' (use the sub-menus on the right). Pressing 'Enter' again will store the values (returns to menu P09.03.28).
	P09.03.29 ↵	P21 – Run schedule	Press Enter. Use the 'up' and 'down' arrows to set between 'not available', 'read-only' or 'edit access' (use the sub-menus on the right). Pressing 'Enter' again will store the values (returns to menu P09.03.29).
	P09.03.30 ↵	P80 - GCI Main menu	Press Enter. Use the 'up' and 'down' arrows to set between 'not available', 'read-only' or 'edit access' (use the sub-menus on the right). Pressing 'Enter' again will store the values (returns to menu P09.03.30).

↵ Press ENTER to access the sub-menus

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Acesso	P09.03.31 ↵	P81 – Definições GCI	Press Enter. Use the 'up' and 'down' arrows to set between 'not available', 'read-only' or 'edit access' (use the sub-menus on the right). Pressing 'Enter' again will store the values (returns to menu P09.03.31).
	P09.03.32 ↵	P82 – Prioridade GCI	Press Enter. Use the 'up' and 'down' arrows to set between 'not available', 'read-only' or 'edit access' (use the sub-menus on the right). Pressing 'Enter' again will store the values (returns to menu P09.03.32).
	P09.04 ↵	User 2	Setting user 2 permissions. Press 'Enter' to access the 'User 2' sub-menu. Follow the same procedures described above for 'User 1'.
	P09.05 ↵	User 3	Setting user 3 permissions. Press 'Enter' to access the 'User 3' sub-menu. Follow the same procedures described above for 'User 1'.
	P09.06 ↵	User 4	Setting user 4 permissions. Press 'Enter' to access the 'User 4' sub-menu. Follow the same procedures described above for 'User 1'
	P09.07 ↵	User 5	Setting user 5 permissions. Press 'Enter' to access the 'User 5' sub-menu. Follow the same procedures described above for 'User 1'.
	P09.08 ↵	User 6	Setting user 6 permissions. Press 'Enter' to access the 'User 6' sub-menu. Follow the same procedures described above for 'User 1'.
	P09.09 ↵	User 7	Setting user 7 permissions. Press 'Enter' to access the 'User 7' sub-menu. Follow the same procedures described above for 'User 1'.
	P09.10 ↵	User 8	Setting user 8 permissions. Press 'Enter' to access the 'User 8' sub-menu. Follow the same procedures described above for 'User 1'
	P09.11 ↵	User 9	Setting user 9 permissions. Press 'Enter' to access the 'User 9' sub-menu. Follow the same procedures described above for 'User 1'.
	P09.12 ↵	User 10	Setting user 10 permissions. Press 'Enter' to access the 'User 10' sub-menu. Follow the same procedures described above for 'User 1'.
P10 – Config. EQUIP 1	**Setup of equipment 1 is divided into a series of menus, which are grouped by function. This group's access is allowed for administrator users.**		
	P10.01* ↵	Control Mode	See 'control modes and status diagram'. Press 'ENTER' and use the 'up' and 'down' arrows to set 'load/relief', 'continuous work', 'pressure drop/no load', 'dynamic/no load', 'variable speed' , 'modulation'. Pressing 'Enter' again will store the values (returns to menu P10.01). Note: When selecting 'variable speed', P13 menu parameters must be set appropriately.
	P10.02 ↵	Perm load strength	When active (ON), allows the operator to force the compressor to go into relief. Once activated, to force relief status, hold the 'START' button and then press the 'DOWN' arrow. The compressor will remain in relief until the forced relief condition is removed. If the relief period expires, the compressor will go to the initial starting state. To remove the forced relief condition repeat the sequence. Stopping the compressor removes the forced relief condition. Note: If during the forced relief condition the compressor returns to the initial starting status, the operator will need to remove the forced relief condition so that the compressor can enter the load state again. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 'ON' and 'OFF'. Press ENTER. Thus, the configured value is stored in memory and the browser returns to P10.02.
	P10.04 ↵	Load pressure	Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set the allowed values. Press 'ENTER'. The set value is stored in memory and the browser returns to P10.04 ~ 05. The minimum allowed difference between load and relief pressures is 0.2BAR (or another selected unit of measure with equivalent value).
	P10.05 ↵	Relief pressure	
	P10.06 ↵	Relief pressure	Operating period. See control modes: pressure drop / no load. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 60 and 3600 seconds. Press 'ENTER'. The set value is stored in memory and the browser returns to P10.06.
	P10.07 ↵	Relief period	Relief period. See control modes: pressure drop / no load. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 60 and 3600 seconds. Press 'ENTER'. The set value is stored in memory and the browser returns to P10.07.
	P10.09 ↵	RS485: SETUP 1	Press 'ENTER' to access RS485: sub-menu setting 1.
	P10.09.01 ↵	RS485: SETUP 1	Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to select between 'Airbus485TM', 'MODBUS master' or 'MODBUS slave'. Press 'ENTER'. The set value is stored in memory and the browser returns to P10.09.01.
	P10.09.02 ↵	Airbus485™ Address	Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to select between 1 and 200 (unit pitch). Press 'ENTER'. The set value is stored in memory and the browser returns to P10.09.02.
	P10.09.03 ↵	MODBUS Address	Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to select between 1 and 200 (unit pitch). Press 'ENTER'. The set value is stored in memory and the browser returns to P10.09.03.
	P10.09.04 ↵	MODBUS Transm Rate	Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to select between 300, 600, 1200, 1800, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600, 115200, 230400, 460800 and 931600. Press 'ENTER'. The set value is stored in memory and the browser returns to P10.09.04.
	P10.09.05 ↵	MODBUS Parity	Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to select between 'no parity', 'even parity', 'odd parity', 'zero parity' or 'parity one'. Press 'ENTER'. The set value is stored in memory and the browser returns to P10.09.05.
	P10.09.06 ↵	MODBUS data bits	Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 5 and 8. Press 'ENTER'. The set value is stored in memory and the browser returns to P10.09.06.

↵ Press ENTER to access the sub-menus

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P10 – Config. EQUIP 1	P10.09.07 ↵	MODBUS end bits	Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 1 and 3. Press 'ENTER'. The set value is stored in memory and the browser returns to P10.09.07.
	P10.10 ↵	RS485: SETUP 2	Press 'ENTER' to access RS485: sub-menu setting 2.
	P10.10.01 ↵	RS485: SETUP 2	Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to select between 'Airbus485TM', 'MODBUS master' or 'MODBUS slave'. Press 'ENTER'. The set value is stored in memory and the browser returns to P10.10.01.
	P10.10.02 ↵	Endereço Airbus485™	Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to select between 1 and 200 (unit pitch). Press 'ENTER'. The set value is stored in memory and the browser returns to P10.10.02.
	P10.10.03 ↵	Endereço MODBUS	Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to select between 1 and 200 (unit pitch). Press 'ENTER'. The set value is stored in memory and the browser returns to P10.10.03.
	P10.10.04 ↵	Taxa Transm MODBUS	Press 'ENTER'. Use the UP and DOWN arrows to select between 300, 600, 1200, 1800, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600, 115200, 230400, 460800 and 931600. Press 'ENTER'. The set value is stored in memory and the browser returns to P10.10.04
	P10.10.05 ↵	Paridade MODBUS	Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to select between 'no parity', 'even parity', 'odd parity', 'zero parity' or 'parity one'. Press 'ENTER'. The set value is stored in memory and the browser returns to P10.10.05.
	P10.10.06 ↵	Bits dados MODBUS	Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 5 and 8. Press 'ENTER'. The set value is stored in memory and the browser returns to P10.10.06.
	P10.10.07 ↵	Bits fim MODBUS	Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 1 and 3. Press 'ENTER'. The set value is stored in memory and the browser returns to P10.10.07.

P10 – Config. EQUIP 1	P10.12* ↵	Starting source	The starting source is commonly associated with the 'START' button. In addition to this, you can configure other starting sources. See the notes below! Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set 'INTERFACE BUTTON', 'EQUIPMENT DI' or 'COMMUNICATIONS'. Press 'ENTER'. The set value is stored in memory and the browser returns to P10.12. **Notas:** - Only the selected starting source method is activated (only one). When selected, all other alternative starting source methods will be inactivated! - Any start command simply requests the compressor to go to the initial starting status. In this condition, the compressor may not necessarily go to another status (e.g. in operation, under load). Settings of the restrictive functions, timers and load source will still continue to influence the operating features after the start command. - When set to 'INTERFACE BUTTON', the 'START' button will be the starting source and the 'STOP' button will be the stop source. - When set to 'EQUIPMENT DI', the 'normal' status of the digital input (that is, normally open or normally closed) will be the starting source and the alternative (reverse) status of that input will be the stop source. - The 'normal' status of the digital inputs can be configured for either 'normally open' or 'normally closed'. Pay close attention to this setting for correct operation of the machine. - When set to 'EQUIPMENT DI', an available digital input must be properly set to 'COMP START / STOP'. - When set to 'COMMUNICATIONS' an appropriate RS485 port needs to be installed and configured for that use.
	P10.13* ↵	Load source	Load source setup. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set 'OUTPUT PRESSURE', 'EQUIPMENT DI' or 'COMMUNICATIONS'. Press 'ENTER'. The set value is stored in memory and the browser returns to P10.13. **Notes: When set to 'EQUIPMENT DI', two available digital inputs need to be properly set to 'ENABLE REMOTE LOAD' and 'REMOTE LOAD/RELIEF'.** **When set to 'COMMUNICATIONS' an appropriate RS485 port needs to be installed and configured for that use.**
	P10.14 ↵	Language	Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to select the language. Press 'ENTER'. The selected value is stored in memory and the browser returns to P10.14.
	P10.15 ↵	Time	Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to adjust the time. Press 'ENTER'. The selected value is stored in memory and the browser returns to P10.15.
	P10.16 ↵	Time format	Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to select the time format (12 hours AM/PM or 24 hours). Press 'ENTER'. The selected value is stored in memory and the browser returns to P10.16.
	P10.17 ↵	DST	Press 'ENTER'. Set between '+ 0h' or '+ 1h'. Press 'ENTER' again. The selected value is stored in memory and the browser returns to P10.17.
	P10.18 ↵	Date	Press 'ENTER' to access the date edit sub-menu.
	P10.18.01 ↵	Year	Use the 'UP' and 'DOWN' arrows to set the year.
	P10.18.02 ↵	Month	Use the 'UP' and 'DOWN' arrows to set the month.
	P10.18.03 ↵	Day	Use the 'UP' and 'DOWN' arrows to set the day.
	P10.18.04 ↵	Save changes	Press 'ENTER' to save the set P10.18.01-P10.18.03 values and return to P10.18. Note: You need to save the new P10.18.01-P10.18.03 set values using P10.18.04 before leaving the sub-menu!
	P10.19 ↵	Date format	Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set the date format (DD/MM/YYYY or MM/DD/YYYY or YYYY/MM/DD). Press 'ENTER' again. The set value is stored in memory and the browser returns to P10.19. Note: DD: day with 2 digits (01 to 31) MM: month with 2 digits (01 to 12) YYYY: year with 4 digits (e.g. 2015)

↵ Press ENTER to access the sub-menus - *Editable only when the machine is stopped

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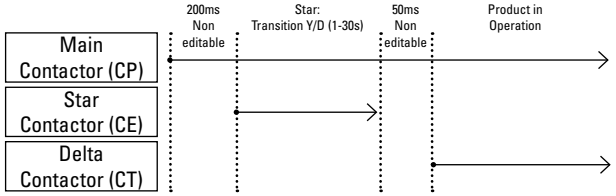
P10 – Config. EQUIP 1	P10.20 ↵	Display Backlight	Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 100% and 0%. Press 'ENTER'. The set value is stored in memory and the browser returns to P10.20.
	P10.21 ↵	Pressure unit	Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 'BAR', 'PSI', 'kPA' or 'MPA'. Press 'ENTER'. The set value is stored in memory and the browser returns to P10.21.
	P10.22 ↵	Temperature unit	Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 'ºC' or 'ºF'. Press 'ENTER'. The set value is stored in memory and the browser returns to P10.22.
	P10.23 ↵	Pres target VSD	Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set the desired pressure. Press 'ENTER'. The set value is stored in memory and the browser returns to P10.23.
P11 – Config. EQUIP 2	**Setup of equipment 2 is divided into a series of menus, which are grouped by function. This group's access is allowed for administrator users.**		
	P11.01 ↵	Transition Y/D	'Star / Delta' transition time of drive contactors. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set from 1 to 30 seconds (unit pitch). Press 'ENTER'. The selected value is stored in memory and the browser returns to P11.01 **Note: Understand the operation of each relay:** - R1: main contactor relay (K1), - R2: 'star' contactor relay (K3), - R3: 'delta' contactor relay (K2). See the drive time diagram below:  Note: R1, R2, R3 and R4 are not editable (they have fixed function). R5, R6, R7 and R8 may be edited. See menu P18 for more information on the possible I/O settings.
	P11.02 ↵	MTR oper min time	Note: R1, R2, R3 and R4 are not editable (they have fixed function). R5, R6, R7 and R8 may be edited. See menu P18 for more information on the possible I/O settings. **Note: The 'LOAD/RELIEF' status is independent of the setting of the minimum motor operation time.** Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set to 'OFF' or from 1 to 60 minutes (adjustable). Press 'ENTER'. The set value is stored in memory and the browser returns to P11.02. **Note: The equipment status timers (e.g. relief time) remain active and can influence the overall working time of the main motor.**
	P11.03 ↵	Load time	Load restraint time. It prevents the compressor from going to the initial load status during this restraint time. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set 'OFF' (that is, not required) and 30 seconds (adjustable, with unit pitch). Press 'ENTER'. The set value is stored in memory and the browser returns to P11.03.
	P11.04 ↵	Reload time	Reload restraint time during normal operation. It prevents the compressor from going to load status during this restraint time. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set 'OFF' (that is, not required) and 10 seconds (adjustable, with unit pitch). Press 'ENTER'. The set value is stored in memory and the browser returns to P11.04.
	P11.05 ↵	Relief time	Time that the compressor will continue to operate during 'RELIEF' status. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set from 3 to 3600 seconds (unit pitch). Press 'ENTER'. The set value is stored in memory and the browser returns to P11.05.
	P11.06 ↵	Min stop time	Minimum idle time. This is the minimum time the compressor will remain in stopped status before moving to a new status. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set 'OFF' (that is, not required) and 60 seconds (adjustable, with unit pitch). Press 'ENTER'. The set value is stored in memory and the browser returns to P11.06.
	P11.07 ↵	Cooling time	Cooling time (also called internal pressure reduction time). This is the time required to discharge the pressure of the compressed air/oil internal tank. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set 'OFF' (that is, not required) and 600 seconds (adjustable, with unit pitch). Press 'ENTER'. The set value is stored in memory and the browser returns to P11.07.
	P11.08 ↵	Auto restart	Automatic start restraint. Used to prevent automatic restart, or to return to the initial status after a power failure. Once power is restored, the equipment will wait for the set restraint time to restart. **Note: The equipment will only restart if it is in operation before the power failure. If the equipment is set to automatic restart and is not operating before the power failure, it will not restart!** Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set to 'OFF' (that is, no automatic restart) or from 1 to 120 seconds (adjustable). Press 'ENTER'. The set value is stored in memory and the browser returns to P11.08.

↵ Press ENTER to access the sub-menus
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P11 – Config. EQUIP 2	P11.09 ↵	Open purge	**The purge is used to drain condensed water from the compressor tank. This is performed through solenoid valves. Before setting the time and purge interval, be sure to assign the relay output to "drain" function.** **Open purge time.** Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set to 'OFF' (i.e. no purge) or from 1 to 30 seconds (adjustable). Press 'ENTER'. The set value is stored in memory and the browser returns to P11.09. **Purge interval.** Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set from 60 to 3600 seconds (adjustable). Press 'ENTER'. The set value is stored in memory and the browser returns to P11.10. **Drain time in relief.** Active only during relief time. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 'OFF' (that is, no drain) or between 1 and 30 seconds (adjustable). Press 'ENTER'. The set value is stored in memory and the browser returns to P11.11. Note: The equipment's position on the status diagram influences the purge interval! - When the equipment is in "load" status, the drain cycle normally occurs, as configured in P11.09 and P11.10. - When the equipment enters "relief" status, the purge time that has been interrupted is stored in memory, returning after entering in "load" status.
	P11.10 ↵	Air vent interv	
	P11.11 ↵	Purge in Relief	
	P11.12 ↵	Starts by hour	Restraint of maximum number of starts per hour. Each time the main motor starts, an inclusion event occurs in a perpetual FIFO list (first in, first out). In the interval of 3600 seconds (or 1 hour), for each additional start, up to the maximum number set, a new input is made. If the number of starts reaches the maximum, a new relief time is calculated to allow an additional start, successively. **Note: this function only influences relief time and does not prevent the motor from starting. If a start request occurs after the maximum number of starts per hour, the last record is removed from the list of FIFO events, forcing the relief time to increase.** Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 'OFF' (that is, no limit) or between 1 and 20 starts per hour (adjustable, with unit pitch). Press 'ENTER'. The set value is stored in memory and the browser returns to P11.12.
	P11.13 ↵	DifPres Delay	Restraint time for differential pressure (between outlet pressure and internal pressure in the air-oil separator). This function is used to filter or ignore sudden changes during the set time interval. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set from 1 to 600 seconds (unit pitch). Press 'ENTER'. The set value is stored in memory and the browser returns to P11.13.
	P11.14 ↵	Maintenance hours 1	Used to configure a variety of maintenance services 1. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 'OFF' (that is, without scheduling) or between the following services: air filter check, oil filter check, belt check, dust cleaning of compartment filters, oil change, separator check, grease bearings, exhaust check, dryer check, electrical part check, lubrication, valve check, flow vs pressure and unit check. Press 'ENTER'. The set value is stored in memory and the browser returns to P11.14. **Note: set the hours in parameter P16.01.**
	P11.15 ↵	Maintenance hours 2	Used to configure a variety of maintenance services 2. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 'OFF' (that is, without scheduling) or between the following services: air filter check, oil filter check, belt check, dust cleaning of compartment filters, oil change, separator check, grease bearings, exhaust check, dryer check, electrical part check, lubrication, valve check, flow vs pressure and unit check. Press 'ENTER'. The set value is stored in memory and the browser returns to P11.15. **Note: set the hours in parameter P16.02.**
	P11.16 ↵	Maintenance hours 3	Used to configure a variety of maintenance services 3. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 'OFF' (that is, without scheduling) or between the following services: air filter check, oil filter check, belt check, dust cleaning of compartment filters, oil change, separator check, grease bearings, exhaust check, dryer check, electrical part check, lubrication, valve check, flow vs pressure and unit check. Press 'ENTER'. The set value is stored in memory and the browser returns to P11.16. **Note: set the hours in parameter P16.03.**
	P11.17 ↵	Maintenance hours 4	Used to configure a variety of maintenance services 4. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 'OFF' (that is, without scheduling) or between the following services: air filter check, oil filter check, belt check, dust cleaning of compartment filters, oil change, separator check, grease bearings, exhaust check, dryer check, electrical part check, lubrication, valve check, flow vs pressure and unit check. Press 'ENTER'. The set value is stored in memory and the browser returns to P11.17. **Note: set the hours in parameter P16.04.**
	P11.18 ↵	Maintenance hours 5	Used to configure a variety of maintenance services 5. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 'OFF' (that is, without scheduling) or between the following services: air filter check, oil filter check, belt check, dust cleaning of compartment filters, oil change, separator check, grease bearings, exhaust check, dryer check, electrical part check, lubrication, valve check, flow vs pressure and unit check. Press 'ENTER'. The set value is stored in memory and the browser returns to P11.18. **Note: set the hours in parameter P16.05.**

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P11 – Settings EQUIP 2	P11.19 ↵	Maintenance hours 6	Used to configure a variety of maintenance services 6. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 'OFF' (that is, without scheduling) or between the following services: air filter check, oil filter check, belt check, dust cleaning of compartment filters, oil change, separator check, grease bearings, exhaust check, dryer check, electrical part check, lubrication, valve check, flow vs pressure and unit check. Press 'ENTER'. The set value is stored in memory and the browser returns to P11.19. **Note: set the hours in parameter P16.06.**
	P11.20 ↵	Maintenance hours 7	Used to configure a variety of maintenance services 7. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 'OFF' (that is, without scheduling) or between the following services: air filter check, oil filter check, belt check, dust cleaning of compartment filters, oil change, separator check, grease bearings, exhaust check, dryer check, electrical part check, lubrication, valve check, flow vs pressure and unit check. Press 'ENTER'. The set value is stored in memory and the browser returns to P11.20. **Note: set the hours in parameter P16.07.**
	P11.21 ↵	Maintenance hours 8	Used to configure a variety of maintenance services 8. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 'OFF' (that is, without scheduling) or between the following services: air filter check, oil filter check, belt check, dust cleaning of compartment filters, oil change, separator check, grease bearings, exhaust check, dryer check, electrical part check, lubrication, valve check, flow vs pressure and unit check. Press 'ENTER'. The set value is stored in memory and the browser returns to P11.21. **Note: set the hours in parameter P16.08.**
	P11.22 ↵	Weekly maintenance	Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 'ON' and 'OFF'. Press ENTER. The set value is stored in memory and the browser returns to P11.19. **Note: set the hours in parameter P16.06.**
	P11.23 ↵	Annual maintenance	Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 'ON' and 'OFF'. Press ENTER. The set value is stored in memory and the browser returns to P11.20. **Note: set the hours in parameter P16.07.**
	P11.24 ↵	Biannual maintenance	Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 'ON' and 'OFF'. Press ENTER. The set value is stored in memory and the browser returns to P11.21. **Note: set the hours in parameter P16.08.**
Setup EQUIP 3	**Setup of equipment 3 is divided into a series of menus, which are grouped by function. This group's access is allowed for administrator users.**		
	P12.01*↵	Reset parameters	The default values are defined by the software configuration file. Press 'ENTER'. Use the 'UP' arrow to select 'YES'. Press 'ENTER'. The default values are reset. **Note: The reset is logged in the event log.**
	P12.02* ↵	Save as SETUP	Creates a new setup file, overwriting the existing file. Press 'ENTER'. Use the 'UP' arrow to select 'YES'. Press 'ENTER'. Current parameters are stored in the configuration file. **Notes: understand how the interface manages parameter data.** - The default values are defined by the software configuration file. - Current parameters are set during normal operation, and may differ from the original setup file. - By resetting the parameters, current values are replaced by the current configuration file (original or saved later).
	P12.03* ↵	Use custom SEN	Use of pressure sensor with custom reading range. The default pressure sensor is from 0 to 16 BAR (or other selectable unit). To use a different reading range, press 'ENTER', select 'ON', press 'ENTER' again. The parameter is stored and the menu returns to P12.03.
	P12.04* ↵	PRESSURE Range	Compressor outlet pressure reading range. Press 'ENTER'. Set the desired pressure. Press 'ENTER' again. The parameter value is stored and the menu returns to P12.04. Note: The standard is 4-20mA signal, with 4mA equivalent to minimum pressure and 20mA equivalent to maximum.
	P12.05* ↵	Internal PRESSURE range	Compressor internal pressure reading range. Press 'ENTER'. Set the desired pressure. Press 'ENTER' again. The parameter value is stored and the menu returns to P12.05. Note: The standard is 4-20mA signal, with 4mA equivalent to minimum pressure and 20mA equivalent to maximum.
	P12.06 ↵	Reset reg errors	Deletes the error log. Press 'ENTER'. Use the 'UP' arrow to select 'YES'. Press 'ENTER'. The error log will be deleted and the menu will return to P12.06.
	P12.07 ↵	Reset reg events	Deletes the event log. Press 'ENTER'. Use the 'UP' arrow to select 'YES'. Press 'ENTER'. The event log will be deleted and the menu will return to P12.07.
	P12.08 ↵	HRS total STR	Total hours worked since the technical start. **Note: The set date must match the technical start date.**
	P12.08.01	Year	Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set the corresponding year. Press 'ENTER'. The set value is stored in memory and the browser returns to P12.08.01.
	P12.08.02	Month	Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set the corresponding month. Press 'ENTER'. The set value is stored in memory and the browser returns to P12.08.02.
	P12.08.03	Day	Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set the corresponding day. Press 'ENTER'. The set value is stored in memory and the browser returns to P12.08.03.
	P12.08.04	Date	Press 'ENTER'. The values set in P12.08.01 ~ P12.08.03 will be stored in memory and the browser will return to P12.08. **Note: You need to save the new values set in P12.08.01 - P12.08.03 using P12.08.04 before leaving the sub--menu.**
	P12.09 ↵	Ajust load HRS	Setting load hours. It is typically used to clear the hours before the technical start or to synchronize with another external timer. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set the value. Press 'ENTER'. The set value is stored in memory and the browser returns to P12.09.

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Setup EQUIP 3	P12.10 ↵	Adjust relief HRS	Setting relief hours. It is typically used to clear the hours before the technical start or to synchronize with another external timer. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set the value. Press 'ENTER'. The set value is stored in memory and the browser returns to P12.10.
	P12.11 ↵	Adjust stopped HRS	Setting stopped hours. It is typically used to clear the hours before the technical start or to synchronize with another external timer. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set the value. Press 'ENTER'. The set value is stored in memory and the browser returns to P12.11.
	P12.12 ↵	Sensor EA3 type	Setting the analog input sensor type 3. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to select between 'PT1000', 'PT100', 'KTY' or digital. Press 'ENTER'. The set value is stored in memory and the browser returns to P12.12. **Note:** **- it is recommended the use of PT100 or PT1000 temperature sensors;** **- when using KTY sensor, it should be 2000 Ohms @ 25°C.**
	P12.13 ↵	Sensor EA5 type	Setting the analog input sensor type 5. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to select between 'PT1000', 'PT100', 'KTY' or digital. Press 'ENTER'. The set value is stored in memory and the browser returns to P12.13. **Note:** **- it is recommended the use of PT100 or PT1000 temperature sensors;** **- when using KTY sensor, it should be 2000 Ohms @ 25°C.**
	P12.14 ↵	SENS PRESS INT	Compressor internal pressure sensor. When installed, its use and function must be enabled in conjunction with the outlet pressure sensor. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set the value. Press 'ENTER'. The set value is stored in memory and the browser returns to P12.14.
	P12.15 ↵	Enable GCI menu	Enables the GCI menu (integrated compressor manager). Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set the desired value. Press 'ENTER'. The set value is stored in memory and the browser returns to P12.15. When enabled, P80, P81, and P82 menus are available for setup. **Note: menu P12.15 is merely for enabling this item. Once enabled, you must configure the GCI function in menus P80, P81 and P82.**
	P12.16 ↵	PRESS GCI SENS Range	Pressure sensor range for GCI function. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set the desired value. Press 'ENTER'. The set value is stored in memory and the browser returns to P12.16.
	P12.17 ↵	PRESS GCI SENS Range	Setting fan operating temperature (high temperature). Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set the desired value. Press 'ENTER'. The set value is stored in memory and the browser returns to P12.17. **Note: When the 'compressor output temperature' ≥ 'fan operating temperature', the output relay with 'cooling' function is enabled.**
	P12.18 ↵	Temp fan off	Setting fan off temperature (low temperature). Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set the desired value. Press 'ENTER'. The set value is stored in memory and the browser returns to P12.18. **Note: when the 'compressor output temperature' ≤ 'fan off temperature', the output relay with 'cooling' function is turned off.**
	P12.19 ↵	Min. Time fan on	Minimum fan on time. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set the desired value from 0 to 600 seconds (unit pitch). Press 'ENTER'. The set value is stored in memory and the browser returns to P12.19.
	P12.20 ↵	Opening screen	Enables or disables the setting for the opening screen.
	P12.21 ↵	SETUP P00.03	Setting up display of user menus. Press 'ENTER' to access the P00.03 setup sub-menu.
	P12.21.01 ↵	Sel. Menu page	Selecting the menu page on the opening screen, P00.03.
	P12.21.02 ↵	Sel. Menu item	Selecting the menu item on the opening screen, P00.03.
	P12.22 ↵	SETUP P00.04	Setting up display of user menus. Press 'ENTER' to access the P00.04 setup sub-menu.
	P12.22.01 ↵	Sel. Menu page	Selecting the menu page on the opening screen, P00.04.
	P12.22.02 ↵	Sel. Menu item	Selecting the menu item on the opening screen, P00.04.
	P12.23 ↵	SETUP P00.05	Setting up display of user menus. Press 'ENTER' to access the P00.05 setup sub-menu.
	P12.23.01 ↵	Sel. Menu page	Selecting the menu page on the opening screen, P00.05.
	P12.23.02 ↵	Sel. Menu item	Selecting the menu item on the opening screen, P00.05.
Setup FLEX	**Variable speed settings for inverter and main electric motor.**		
	P13.01* ↵	VSD control mode	Speed control mode (variable or fixed). Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 'VARIABLE' and 'FIXED'. Press 'ENTER'. The set value is stored in memory and the browser returns to P13.01. **Notes:** **- in "variable speed" control mode, the compressor will operate in the set speed range;** **- in "fixed speed" control mode, the compressor will operate in only two speeds: optimum speed (low pressure) and relief speed (high pressure), similar to an electronic gear.**

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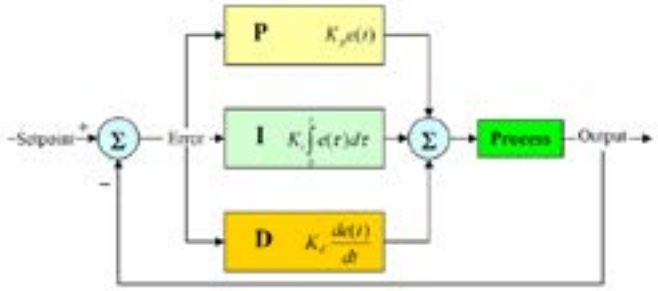
	P13.02* ↵	Pres target VSD	Reference pressure for variable speed compressor.
	P13.03* ↵	MAX VSD Speed	Maximum speed. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 100 and 10000 RPM (pitch 100 RPM). Press 'ENTER'. The set value is stored in memory and the browser returns to P13.03.
	P13.04* ↵	MIN VSD Speed	Minimum speed. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 0 and 9900 RPM (pitch 100 RPM). Press 'ENTER'. The set value is stored in memory and the browser returns to P13.04.
	P13.05* ↵	OPT VSD Speed	Optimal speed. Press 'ENTER'. Set between 100 and 10000 RPM (pitch 100 RPM). Press 'ENTER'. The set value is stored in memory and the browser returns to P13.05. **Note: The optimal speed is used as information by the 485 network.**
	P13.06* ↵	VSD relief SPEED	Compressor speed during relief. Press 'ENTER'. Set between 0 and 9900 RPM (pitch 100 RPM). Press 'ENTER'. The set value is stored in memory and the browser returns to P13.06.
	P13.07	VSD RPM Speed	RPM speed signal for the drive. Non-editable. It is the PID output, which goes to the inverter.
	P13.08	VSD Output CURR	Current signal to drive. Non-editable.
	P13.09* ↵	Const P VSD	Proportional value P, from PID controller (see diagram below). Press 'ENTER'. Set between 0 and 100. Press 'ENTER'. The set value is stored in memory and the browser returns to P13.09. 
	P13.10 ↵	Const I VSD	Integral value I from PID controller (see diagram above). Press 'ENTER'. Set between 0 and 100. Press 'ENTER'. The set value is stored in memory and the browser returns to P13.10.
	P13.11 ↵	Const D VSD	Derivative value D from PID controller (see diagram above). Press 'ENTER'. Set between 0 and 100. Press 'ENTER'. The set value is stored in memory and the browser returns to P13.11.
	P13.12	VSD Speed %	Compressor's percentage speed. Non-editable.
	P13.13 ↵	VSD max acl ramp	Maximum acceleration ramp. Press 'ENTER'. Set between 5% and 100% (pitch 1%). Press 'ENTER'. The set value is stored in memory and the browser returns to P13.13.
	P13.14 ↵	Line lim speed	-
	P13.25 ↵	Avoid freq. Hz 2 low	Set lower limit of range 1 of frequencies to be avoided (Hz1-lower). Press 'ENTER'. Set between OFF and 100Hz (unit step). Press 'ENTER' again. The set value is stored in memory and the browser returns to P13.25. **Notes:** **When frequency band 1 is set to a value other than OFF, the remaining parameters appear. There are 3 frequency range settings (Hz1, Hz2 and Hz3).**
	P13.26 ↵	Avoid freq. Hz 1 high	Set upper limit of range 1 of frequencies to be avoided (Hz1-upper). Press 'ENTER'. Set between Hz1-lower and 100Hz (unit pitch). Press 'ENTER' again. The set value is stored in memory and the browser returns toP13.26
	P13.27 ↵	Avoid freq. Hz 2 low	Set lower limit of range 2 of frequencies to be avoided (Hz2-lower). Press 'ENTER'. Set between OFF and 100Hz (unit pitch). Press 'ENTER' again. The set value is stored in memory and the browser returns to P13.27.
	P13.28 ↵	Avoid freq. Hz 2 high	Set upper limit of range 2 of frequencies to be avoided (Hz2-upper). Press 'ENTER'. Set between Hz2-lower and 100Hz (unit pitch). Press 'ENTER' again. The set value is stored in memory and the browser returns to P13.28.
	P13.29 ↵	Avoid freq. Hz 3 low	Set lower limit of range 3 of frequencies to be avoided (Hz3-lower). Press 'ENTER'. Set between OFF and 100Hz (unit pitch). Press 'ENTER' again. The set value is stored in memory and the browser returns to P13.29.
	P13.30 ↵	Avoid freq. Hz 3 high	Set upper limit of range 3 of frequencies to be avoided (Hz3-upper). Press 'ENTER'. Set between Hz3-lower and 100Hz (unit pitch). Press 'ENTER' again. The set value is stored in memory and the browser returns to P13.30.

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Motor Protection	**Motor protections are part of the advanced interface monitoring, applied in two ways. First, the frequency and phase protections are promoted through connection X12 (L1, L2 and L3) - menus P16 and P17 for detailed information. Next, there are protections for phase angle, low current detection, blocked rotor, overload and phase imbalance - menu P14 for detailed information.**		
	P14.01 ↵	Main MTR protection	Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between ON and OFF. Press 'ENTER'. The set value is stored in memory and the browser returns to P14.01.
	P14.02 ↵	Protec MTR fan	Main motor rated current. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 5.0A and 1000A (pitch 0.1A). Press 'ENTER'. The set value is stored in memory and the browser returns to P14.03.
	P14.03 ↵	MTR Main Rated Curr	Main motor rated current. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 5.0A and 1000A (pitch 0.1A). Press 'ENTER'. The set value is stored in memory and the browser returns to P14.03.
	P14.04 ↵	Main MTR Start	Time factor for the star/delta transition (see example at the end of this chapter). Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set up between 1.1 and 3.0 (pitch 0.1). Press 'ENTER'. The set value is stored in memory and the browser returns to P14.04.
	P14.05 ↵	ROT BLOC main MTR	Blocked rotor current factor of the main motor (see example at the end of this chapter). Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between OFF and 5.0 (pitch 0.1). Press 'ENTER'. The set value is stored in memory and the browser returns to P14.05.
	P14.06 ↵	DES phase main MTR	Main motor phase unbalance factor (see example at the end of this chapter). Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 5% and 40%. Press 'ENTER'. The set value is stored in memory and the browser returns to P14.06.
	P14.07 ↵	Fan MTR Rated Curr	Fan motor rated current. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 0.5A and 100A (pitch 0.01A). Press 'ENTER'. The set value is stored in memory and the browser returns to P14.07.
	P14.08 ↵	Start Fan MTR	Fan motor start time (during this time the current overload is disabled). Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 1s and 10s (pitch 0.1s). Press 'ENTER'. The set value is stored in memory and the browser returns to P14.08.

↵ Press ENTER to access the sub-menus

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Parameterizing the motor's rated current:

For motor protection to function correctly, it is important to set the rated current of the main motor in parameter P14.03 and also the rated fan current in parameter P14.07.

The nominal current can be obtained from the motor nameplate (rated current * service factor). If this value is not available, the current can be calculated as follows:

$$Im = \frac{P(W).FS}{V_L.\sqrt{3}.FP.\eta}$$

Where, *Im* is the motor current, *P(W)* is the rated power of the motor in Watts, *FS* is the motor service factor, V_L is the motor line voltage, *FP* is the motor power factor *(cosΦ)* and η the motor efficiency.

E.g.: For a main motor of 37kW, service factor 1.1, line voltage 380V, power factor 0.85 and yield of 89%:

$$Im = \frac{37000 * 1.1}{380 * \sqrt{3} * 0.85 * 0.89} = 82A$$

Note: The same formula can be used to calculate the fan motor current.

Selection of current transformer (CT) and measurement positioning:

CT Selection: There is a wide range of current transformers on the market, for example, from 5A to 650A. To avoid reading errors, the measured current must correspond to at least 40% of the rated CT current.

Loop the CT with more turns when necessary, considering that the measurement will be multiplied by this factor (e.g. 3 turns → measured current * 3).

Note: when the TC is looped with more turns (>1) be sure to set parameter P19.

Main motor:

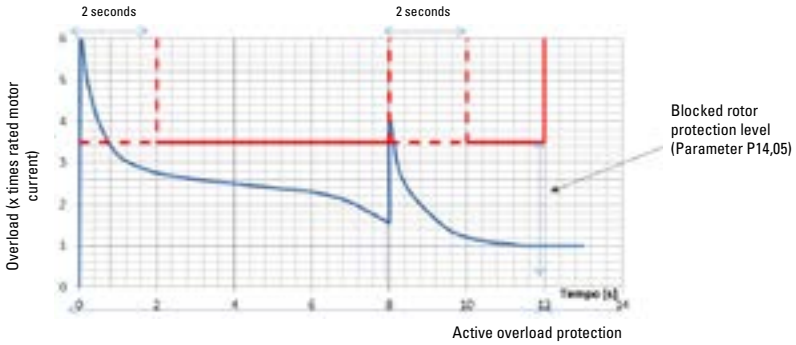
Pay attention to the current measuring point. The "delta" current is 1.73 times smaller than the "star" current. The current parameter on the interface should be adjusted to suit the measured value. In the case of the previous example, if the current to be adjusted at the interface is measured in "delta" it must be 82A/1.73=47A.

Fan:
Usually, the motor current is measured in “star”.

Overload and blocked rotor protection:
Blocked rotor and overload protections are not enabled simultaneously!
During motor startup, the locked rotor protection is enabled for the period set in parameter P14.04. After this period, the blocked rotor protection is disabled and the overload protection is then enabled

Blocked rotor protection (improves motor protection at starts):
The blocked rotor protection will go to the main motor immediately if the current reaches the maximum limit. This protection has an operating time of 2 seconds to avoid false errors.

The following method is only a guide for parameterizing P14.05 (in you have any questions, consult a specialist).



Typical values are between 2.5 and 4. A simple method to adjust the value of this parameter is to gradually reduce the factor until the blocked rotor error occurs (the motor must be cold for this setting). With this value set, add 1 to the value found to compensate for variations.

Overload protection (continuous protection):
After the “star-delta” start period, overload protection of the main motor is activated. Similarly, after the fan motor acceleration time, the motor overload protection is also enabled.

It is not necessary to set the overload protection characteristics because the interface performs the protection based on the rated current value as follows:

Overload protection

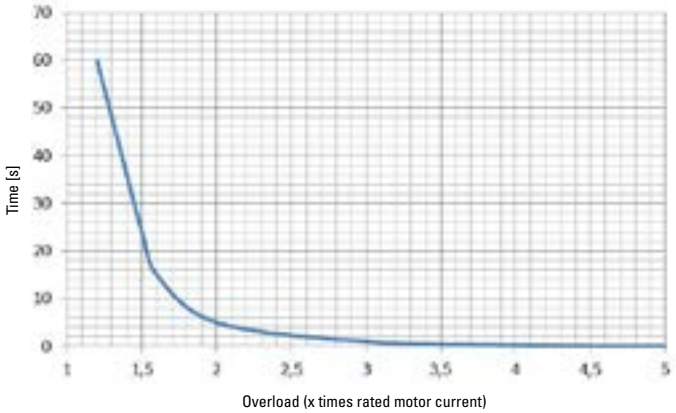


Table 8.6.4 - Overload protection	
Overload factor	Time [s]
1,2	60
1,3	48
1,5	24
1,6	15
2	5
3	1
4	0,25
5	0,1

Undercurrent Detection:
No setup is required for undercurrent! After 2 seconds, the interface monitors the current in any operating status. If the measured current falls below 20% of the rated current, the interface will understand that there is an abnormal error and stop the compressor immediately.

Note: 20% is high enough to filter out any noise and low enough to avoid false errors (e.g. no load).

Main motor phase unbalance protection:
A priori, the measured voltage value for each phase must be equal. Unbalance protection measures any deviation from this condition. If the measured value in any of the 3 phases deviates over the value set in P14.06 (percentage), the interface stops the compressor.

Protection by main motor phase angle:
No setup is required! The interface monitors the sequence of phases 1, 2 and 3 and the corresponding angles.

Phase L1 angle = 0°
Phase L2 angle = between 100° and 140°
Phase L3 angle = between 220° and 260°

If the phase angle error occurs, the interface will stop the compressor immediately.

Protection for current sensor or wiring interruption failure:
If the measured current falls below 20% of the rated current value when the motor is running, the interface will assume that there is an error in the current sensor or wiring failure.

8.7 CONFIGURABLE MENUS

The interface has a number of configurable menus to restrict compressor malfunctions, as shown below.

Table 8.7.1 - Configurable Menus

Name	Code	Text	Additional information
Impediments	P15.01* ↵	Operator	This parameter is used so the operator can intentionally block the machine operation. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between ON and OFF. Press 'ENTER' again. The set value is stored in memory and the browser returns to P15.01.
	P15.02 ↵	Open door	For safety reasons, some equipment requires the door to be closed to release the operation. Blocking the operation can be performed through a digital input (see instructions on setting up a digital input). Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between ON and OFF. Press 'ENTER' again. The set value is stored in memory and the browser returns to P15.02. **Note: The digital input must be set to "open door".**
	P15.03 ↵	Low Temperature	For safety reasons, some equipment requires the door to be closed to release the operation. Blocking the operation can be performed through a digital input (see instructions on setting up a digital input). Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between ON and OFF. Press 'ENTER' again. The set value is stored in memory and the browser returns to P15.02. Note: The digital input must be set to "open door".
	P15.04 ↵	High INT PRESS	This parameter is used to prevent the compressor from starting when the internal pressure is too high. For this operation, the compressor must have a pressure sensor installed in the internal air/oil tank. If this sensor isn't available, this parameter must be disabled. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 0.1BAR and 2.0BAR (in BAR or other selected pressure unit). Press 'ENTER' again. The set value is stored in memory and the browser returns to P15.04.
Warning alarm	**Setup of ALARMS and WARNINGS and immediate stop conditions by ALARMS.**		
	P16.01 ↵	Air filter maint.	It is recommended to set this parameter to control the maintenance frequency for the air filter. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set from 0 to 10,000 hours (100-hour pitch). The default value is 2,000 hours. Press 'ENTER' again. The set value is stored in memory and the browser returns to P16.01. Note: you need to enable the parameter in menu P11 - equipment settings.
	P16.02 ↵	Oil filter maint.	It is recommended to set this parameter to control the maintenance frequency for the oil filter. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set from 0 to 10,000 hours (100-hour pitch). The default value is 2,000 hours. Press 'ENTER' again. OThe set value is stored in memory and the browser returns to P16.02. Note: you need to enable the parameter in menu P11 - equipment settings.
	P16.03 ↵	Separator maint.	It is recommended to set this parameter to control the maintenance frequency for the air/oil separator. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set from 0 to 10,000 hours (100-hour pitch). The default value is 2,000 hours. Press 'ENTER' again. The set value is stored in memory and the browser returns to P16.03. Note: you need to enable the parameter in menu P11 - equipment settings.
	P16.04 ↵	MTR grease maint.	It is recommended to set this parameter to control the maintenance frequency to grease the bearings/bearing of the main motor. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set from 0 to 10,000 hours (100-hour pitch). The default value is 2,000 hours. Press 'ENTER' again. The set value is stored in memory and the browser returns to P16.04. Note: you need to enable the parameter in menu P11 - equipment settings.

↵ Press ENTER to access the sub-menus - *Editable only when the machine is stopped.
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Warning alarm	P16.05 ↵	Check oil	It is recommended to set this parameter to control the maintenance frequency for checking and/or replacing oil. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set from 0 to 10,000 hours (100-hour pitch). The default value is 2,000 hours. Press 'ENTER' again. The set value is stored in memory and the browser returns to P16.05. **Note: you need to enable the parameter in menu P11 - equipment settings.**
	P16.06 ↵	Maintenance hours	Programmable. Used to control maintenance frequency (miscellaneous use). Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set from 0 to 10,000 hours (100-hour pitch). The default value is 2,000 hours. Press 'ENTER' again. The set value is stored in memory and the browser returns to P16.06. **Note: you need to enable the parameter in menu P11 - equipment settings.**
	P16.07 ↵	Maintenance hours	Programmable. Used to control maintenance frequency (miscellaneous use). Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set from 0 to 10,000 hours (100-hour pitch). The default value is 2,000 hours. Press 'ENTER' again. The set value is stored in memory and the browser returns to P16.07. **Note: you need to enable the parameter in menu P11 - equipment settings.**
	P16.08 ↵	Maintenance hours	Programmable. Used to control maintenance frequency (miscellaneous use). Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set from 0 to 10,000 hours (100-hour pitch). The default value is 2,000 hours. Press 'ENTER' again. The set value is stored in memory and the browser returns to P16.08. **Note: you need to enable the parameter in menu P11 - equipment settings.**
	P16.09 ↵	Manut semanal	Weekly maintenance warning. Press 'ENTER' to access sub-menu P16.09 ##. **Note: you need to enable the parameter in menu P11 - equipment settings.**
	P16.09.01 ↵	AUTO SCHEDULING	Enables automatic scheduling for the next service (weekly). Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to select 'YES'. Press 'ENTER' again to confirm. **Note: automatic scheduling adds 7 calendar days to the value set at P16.09.02 ~ P16.09.05.**
	P16.09.02 ↵	Year	Manual "year" setup for next maintenance. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set the 'year'. Press 'ENTER' again. The set value is stored in memory and the browser returns to P16.09.02.
	P16.09.03 ↵	Month	Manual "month" setup for next maintenance. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set the 'month'. Press 'ENTER' again. The set value is stored in memory and the browser returns to P16.09.03
	P16.09.04 ↵	Day	Manual "day" setup for next maintenance. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set the 'day'. Press 'ENTER' again. The set value is stored in memory and the browser returns to P16.09.04.
	P16.09.05 ↵	Time	Manual "time" setup for next maintenance.
	P16.09.06 ↵	Saves changes	Press 'ENTER'. The set value is stored in memory and the browser returns to P16.09. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set the 'time'. Press 'ENTER' again. The set value is stored in memory and the browser returns to P16.09.05.
	P16.10 ↵	Annual maintenance	Annual maintenance warning. Press 'ENTER' to access submenu P16.10 ##. **Note1: you need to enable the parameter in menu P11 - equipment settings.** **Note2: follow the sequence of year, month, day, and time settings described above.**
	P16.11 ↵	Bi-annual maintenance	Bi-annual maintenance warning. Press 'ENTER' to access submenu P16.11 ##. **Note1: you need to enable the parameter in menu P11 - equipment settings.** **Note2: follow the sequence of year, month, day, and time settings described above.**
	P16.12 ↵	Output temperature	Compressor outlet air over-temperature warning. Analog type (see menu P12.12): Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 'OFF', 70° C and 240° C (or other selected temperature unit), unit pitch. Press 'ENTER' again. The set value is stored in memory and the browser returns to P16.12. Digital type (see menu P12.12): Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 'OFF' and 'ON'. Press ENTER again. The set value is stored in memory and the browser returns to P16.12.
	P16.13* ↵	OUTPUT PRESSURE	Compressor outlet air over-pressure warning. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 'OFF' and the maximum permissible pressure desired (pitch 0.1BAR). Press 'ENTER' again. The set value is stored in memory and the browser returns to P16.13. **Note1: minimum configurable value is 0.1BAR above the relief pressure.** **Note2: maximum configurable value is 0.1BAR below the compressor immediate stop pressure.**
	P16.14* ↵	Internal pressure	High internal pressure warning. Press 'ENTER'. Use the 'UP' and 'DOWN' arrows to set between 'OFF' and the maximum allowable value (0.1 bar pitch). Press 'ENTER' again. The set value is stored in memory and the browser returns to the previous menu. **Note: minimum allowable value is 0.1 bar (or other pressure unit) above the high output pressure warning value (P16.13).** **Note: maximum permitted value is 0.1bar (or other pressure unit) below the internal pressure error value (P17.04).**

↵ Press ENTER to access the sub-menus - *Editable only when the machine is stopped.

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Warning alarm	P16.15 ↵	Differential pressure	High differential pressure warning (internal pressure minus outlet pressure). Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set the values off, 0.1 bar and the maximum value allowed. Press 'ENTER'. The selected value will be stored and the screen will return to the previous menu. **Note: - The minimum difference between the alarm value and the error value for the differential pressure is 0.2bar.** **- Differential pressure monitoring is disabled if the discharge temperature is lower than 50°C.** **- The differential pressure error will only be enabled if the value is above the set value for more than 10 seconds.**
	P16.16 ↵	DP separad elev	High differential pressure warning for oil/air separator. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between off, 0.01 bar and 2.00 bar. Press 'ENTER'. The selected value will be stored and the screen will return to the previous menu. **Note: Differential pressure monitoring is disabled if the discharge temperature is lower than 50°C.** **Note: differential pressure error will only be enabled if the value is above the set value for more than 10 seconds.**
	P16.17 ↵	Phase detection	Power supply voltage warning. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between off and on. The selected value will be stored and the screen will return to the previous menu. If turned on, this parameter will display a warning if a phase failure occurs or if the frequency is below 40Hz or greater than 70Hz for more than 0.5 seconds.
	P16.18 ↵	Starts by hour	Maximum number of main motor starts per hour. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between off, 1 to 20. The selected value will be stored and the screen will return to the previous menu.
	P16.19 ↵	Open door	Open door warning. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. Press 'ENTER'. The selected value will be stored and the screen will return to the previous menu. **Note: requires association with a digital input. Check P18 menu.**
	P16.20 ↵	DP CAB filter	High differential pressure warning on cabinet air input filter. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. Press 'ENTER'. The selected value will be stored and the screen will return to the previous menu. **Note: requires association with a digital input. Check P18 menu.**
	P16.21↵	Air Filter DP	High differential pressure warning on air filter. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. Press 'ENTER'. The selected value will be stored and the screen will return to the previous menu. **Note: requires association with a digital input. Check P18 menu.**
	P16.22 ↵	DP oil filter	High differential pressure warning on oil filter. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. Press 'ENTER'. The selected value will be stored and the screen will return to the previous menu. **Note: requires association with a digital input. Check P18 menu.**
	P16.23 ↵	DP separator	High differential pressure warning on oil filter. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. Press 'ENTER'. The selected value will be stored and the screen will return to the previous menu. **Note: requires association with a digital input. Check P18 menu.**
	P16.24 ↵	Motor fan alarm	Fan motor alarm warning. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. Press 'ENTER'. The selected value will be stored and the screen will return to the previous menu. **Note: requires association with a digital input. Check P18 menu.**
	P16.25 ↵	Purge Alarm	Fan motor alarm warning. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. Press 'ENTER'. The selected value will be stored and the screen will return to the previous menu. **Note: requires association with a digital input. Check P18 menu.**
	P16.26 ↵	COLD water alarm	Alarm warning on the cold-water system. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. Press 'ENTER'. The selected value will be stored and the screen will return to the previous menu. **Note: requires association with a digital input. Check P18 menu.**
	P16.27 ↵	Oil level alarm	Low oil level warning. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. Press 'ENTER'. The selected value will be stored and the screen will return to the previous menu. **Note: requires association with a digital input. Check P18 menu.**
	P16.28 ↵	Dryer alarm	Alarm warning on air dryer. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. Press 'ENTER'. The selected value will be stored and the screen will return to the previous menu. **Note: requires association with a digital input. Check P18 menu.**
	P16.29 ↵	ALM DP Pre-FLT	High differential pressure warning on pre-filter. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. Press 'ENTER'. The selected value will be stored and the screen will return to the previous menu. **Note: requires association with a digital input. Check P18 menu.**

↵ Press ENTER to access the sub-menus - *Editable only when the machine is stopped.
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Warning alarm	P16.30 ↵	Alarm FLT Purge	Purge filter alarm warning. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. Press 'ENTER'. The selected value will be stored and the screen will return to the previous menu. Note: requires association with a digital input. Check P18 menu.
	P16.31 ↵	ALM SEP oil/WAT	Alarm warning on oil/water separator. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. Press 'ENTER'. The selected value will be stored and the screen will return to the previous menu. Note: requires association with a digital input. Check P18 menu.
	P16.32 ↵	High room temp	High room temperature warning. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. Press 'ENTER'. The selected value will be stored and the screen will return to the previous menu. Note: requires association with a digital input. Check P18 menu.
	P16.33 ↵	Alarm Setup 1	Configurable warning 1. Press 'ENTER' to access the sub-menu.
	P16.33.01 ↵	ON config alarm	Enables configurable warning 1. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. Press 'ENTER'. The selected value will be stored and the screen will return to the previous menu. Note: requires association with a digital input. Check P18 menu.
	P16.33.02 ↵	Nome do alarme	Alarm name is text that can be entered on the interface. This text can be used in menu P00.01 (main menu) and menu P03 (error log). Press 'ENTER' to access the text editing menu. The current error text will be displayed and the first digit will be selected. Use the 'UP' and 'DOWN' buttons to set the name and press 'ENTER'. The value of the first letter is saved and the second letter is selected. Complete the process with the other letters. When the operator presses 'ENTER' after the eighth letter, the word is stored and the screen returns to the previous menu.
	P16.34 ↵	Config alarme 2	Configurable warning 2. Press 'ENTER' to access the sub-menu.
	P16.34.01 ↵	ON config alarm	Enables configurable warning 2. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. Press 'ENTER'. The selected value will be stored and the screen will return to the previous menu. Note: requires association with a digital input. Check P18 menu.
	P16.34.02 ↵	Alarm name	Alarm name is text that can be entered on the interface. This text can be used in menu P00.01 (main menu) and menu P03 (error log). Press 'ENTER' to access the text editing menu. The current error text will be displayed and the first digit will be selected. Use the 'UP' and 'DOWN' buttons to set the name and press 'ENTER'. The value of the first letter is saved and the second letter is selected. Complete the process with the other letters. When the operator presses 'ENTER' after the eighth letter, the word is stored and the screen returns to the previous menu.
	P16.35 ↵	Alarm Setup 3	Configurable warning 3. Press 'ENTER' to access the sub-menu.
	P16.35.01 ↵	ON config alarm	Enables configurable warning 3. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. Press 'ENTER'. The selected value will be stored and the screen will return to the previous menu. Note: requires association with a digital input. Check P18 menu.
	P16.35.02 ↵	Alarm name	Alarm name is text that can be entered on the interface. This text can be used in menu P00.01 (main menu) and menu P03 (error log). Press 'ENTER' to access the text editing menu. The current error text will be displayed and the first digit will be selected. Use the 'UP' and 'DOWN' buttons to set the name and press 'ENTER'. The value of the first letter is saved and the second letter is selected. Complete the process with the other letters. When the operator presses 'ENTER' after the eighth letter, the word is stored and the screen returns to the previous menu.
	P16.37 ↵	Ovl mot inv fan	Failure warning on fan motor inverter. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. The selected value will be stored and the screen will return to the previous menu. Note: requires association with a digital input. Check P18 menu.
	P16.38	Ovl mot fan	Fan motor overload warning. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. The selected value will be stored and the screen will return to the previous menu. Note: requires association with a digital input. Check P18 menu.
	P16.39	High oil temp	High oil temperature warning. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. The selected value will be stored and the screen will return to the previous menu. Note: requires association with a digital input. Check P18 menu.
Immediate stop alarm (Errors)	P17.01 ↵	Output temperature	Discharge over-temperature error on compressor unit. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set values from 70°C to 240°C (or other selected temperature unit). Press 'ENTER'. The selected value will be stored and the screen will return to the previous menu.
	P17.02 ↵	High temp setup	Maximum temperature increase rate error. The reason for monitoring the temperature increase rate is to detect any very fast increase in temperature after the motor is running. Press 'ENTER' to access the setup sub-menu.
	P17.02.01 ↵	Delta temp	Maximum allowable temperature increase in a time interval set in P17.02.02. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set values from 1°C to 60°C (or other selected temperature unit). Press 'ENTER'. The selected value will be stored and the screen will return to the previous menu.
	P17.02.02 ↵	Delta time	Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set the values between 5 and 30 seconds. Press 'ENTER'. The selected value will be stored and the screen will return to the previous menu.

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Immediate stop alarm (Errors)	P17.02.03↵	Active time	Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set the values between off, 10 to 60 seconds. Press 'ENTER'. The selected value will be stored and the screen will return to the previous menu. Note: active time is the time interval that the function for monitoring the temperature increase rate remains active after the main motor starts operating.
	P17.03* ↵	Output pressure	Overpressure error on compressor output. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set the allowable values. Press 'ENTER'. The selected value will be stored and the screen will return to the previous menu.
	P17.04* ↵	Internal pressure	Compressor internal overpressure error. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set the allowable values. Press 'ENTER'. The selected value will be stored and the screen will return to the previous menu. Note: The minimum allowed value is 0.1 bar above the high internal pressure alarm.
	P17.05* ↵	High Pres Setup	High pressure drop rate error. The reason for monitoring the compressor's pressure variation is to detect some abnormality in the internal pressure after the main motor starts operating. Note: only active when the internal pressure sensor is active.
	P17.05.01 ↵	Min Int Pres	Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set values from 0 to 2 bar (or other selected pressure unit). Press 'ENTER'. The selected value will be stored and the screen will return to the previous menu.
	P17.05.02 ↵	Active time	Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set the values between off, 1 to 60 seconds. Press 'ENTER'. The selected value will be stored and the screen will return to the previous menu.
	P17.06 ↵	Differential pressure	EHigh differential pressure error (internal pressure minus outlet pressure). Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set the values off, 1.0 bar and the maximum value allowed. Press 'ENTER'. The selected value will be stored and the screen will return to the previous menu. Note: The minimum difference between the alarm value and the error value for the differential pressure is 0.2bar. Note: Differential pressure monitoring is disabled if the discharge temperature is lower than 50°C. Note: differential pressure error will only be enabled if the value is above the set value for more than **10 seconds.**
	P17.07	Main motor block	Main motor blocked error. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. The selected value will be stored and the screen will return to the previous menu.
	P17.08 ↵	Main MTR overload	Overload error on main motor. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. The selected value will be stored and the screen will return to the previous menu. If On, this parameter will turn off the compressor immediately if there is an overload on the main motor, determined by the menu P14 settings or an overload detected by a 'NOT OK' record on a digital input.
	P17.09 ↵	Unbalance motor phase	Error due to phase unbalance in the main motor. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. The selected value will be stored and the screen will return to the previous menu. If On, this parameter will turn off the compressor immediately if phase unbalance occurs.
	P17.10 ↵	Fan MTR overload	Fan motor overload error. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. The selected value will be stored and the screen will return to the previous menu. If On, this parameter will turn off the compressor immediately if there is an overload on the fan motor, determined by the menu P14 settings or an overload detected by a 'NOT OK' record on a digital input.
	P17.11 ↵	Phase detection	Phase sequence or failure error. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. The selected value will be stored and the screen will return to the previous menu. If On, this parameter will turn off the compressor immediately if the phase sequence is incorrect or if a phase failure occurs.
	P17.12 ↵	Open door	Open door error. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. The selected value will be stored and the screen will return to the previous menu. Note: requires association with a digital input. Check P18 menu.
	P17.13	Fan motor alarm	Fan motor failure error. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. The selected value will be stored and the screen will return to the previous menu. Note: requires association with a digital input. Check P18 menu.
	P17.14 ↵	COLD water alarm	Error in the cold-water system. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. The selected value will be stored and the screen will return to the previous menu. Note: requires association with a digital input. Check P18 menu.
	P17.15 ↵	Oil level alarm	Low oil level error. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. The selected value will be stored and the screen will return to the previous menu. Note: requires association with a digital input. Check P18 menu.

↵ Press ENTER to access the sub-menus - *Editable only when the machine is stopped.

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Immediate stop alarm (Errors)	P17.16 ↵	Belt maint.	Belt (s) maintenance error Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. The selected value will be stored and the screen will return to the previous menu. **Note: requires association with a digital input. Check P18 menu.**
	P17.17 ↵	Dryer alarm	Dryer failure error. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. The selected value will be stored and the screen will return to the previous menu. **Note: requires association with a digital input. Check P18 menu.**
	P17.18 ↵	Water flow	Water flow error. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. The selected value will be stored and the screen will return to the previous menu. **Note: requires association with a digital input. Check P18 menu.**
	P17.19 ↵	Inverter failure	Frequency inverter failure error. Use the 'UP' and 'DOWN' buttons to set between Off or On. The selected value will be stored and the screen will return to the previous menu. **Note: requires association with a digital input. Check P18 menu.**
	P17.20 ↵	High temp main MTR	Main motor high temperature error. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. The selected value will be stored and the screen will return to the previous menu. **Note: requires association with a digital input. Check P18 menu.**
	P17.21	High output temp	High output temperature error. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. The selected value will be stored and the screen will return to the previous menu. **Note: requires association with a digital input. Check P18 menu.**
	P17.22	Cool system failure	Cooling system failure error. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. The selected value will be stored and the screen will return to the previous menu. **Note: requires association with a digital input. Check P18 menu.**
	P17.23	Main MTR failure	Main motor failure error. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. The selected value will be stored and the screen will return to the previous menu. **Note: requires association with a digital input. Check P18 menu.**
	P17.24 ↵	CNF immed stop 1	Configurable error 1. Press 'ENTER' to access the sub-menu.
	P17.24.01 ↵	ON CNF immed stop	Enables configurable error 1. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. The selected value will be stored and the screen will return to the previous menu. Note: requires association with a digital input. Check P18 menu.
	P17.24.02 ↵	Immed stop name	The immediate stop error name is a text that can be entered in the interface. This text can be used in menu P00.01 (main menu) and menu P03 (error log). Press 'ENTER' to access the text editing menu. The current error text will be displayed and the first digit will be selected. Use the 'UP' and 'DOWN' buttons to set the name and press 'ENTER'. The value of the first letter is saved and the second letter is selected. Complete the process with the other letters. When the operator presses 'ENTER' after the eighth letter, the word is stored and the screen returns to the previous menu.
	P17.25 ↵	Cnf immed stop 2	Configurable error 2. Press 'ENTER' to access the sub-menu.
	P17.25.01 ↵	ON CNF immed stop	Enables configurable error 2. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. The selected value will be stored and the screen will return to the previous menu. **Note: requires association with a digital input. Check P18 menu.**
	P17.25.02 ↵	Immed stop name	The immediate stop error name is a text that can be entered in the interface. This text can be used in menu P00.01 (main menu) and menu P03 (error log). Press 'ENTER' to access the text editing menu. The current error text will be displayed and the first digit will be selected. Use the 'UP' and 'DOWN' buttons to set the name and press 'ENTER'. The value of the first letter is saved and the second letter is selected. Complete the process with the other letters. When the operator presses 'ENTER' after the eighth letter, the word is stored and the screen returns to the previous menu.
	P17.26 ↵	Cnf immed stop 3	Configurable error 3. Press 'ENTER' to access the sub-menu.
	P17.26.01 ↵	ON CNF immed stop	Enables configurable error 3. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. The selected value will be stored and the screen will return to the previous menu. **Note: requires association with a digital input. Check P18 menu.**
	P17.26.02 ↵	Immed stop name	The immediate stop error name is a text that can be entered in the interface. This text can be used in menu P00.01 (main menu) and menu P03 (error log). Press 'ENTER' to access the text editing menu. The current error text will be displayed and the first digit will be selected. Use the 'UP' and 'DOWN' buttons to set the name and press 'ENTER'. The value of the first letter is saved and the second letter is selected. Complete the process with the other letters. When the operator presses 'ENTER' after the eighth letter, the word is stored and the screen returns to the previous menu.
	P17.32	Ovl mot inv fan	Failure error on fan motor inverter. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. The selected value will be stored and the screen will return to the previous menu. **Note: requires association with a digital input. Check P18 menu.**

↵ Press ENTER to access the sub-menus - *Editable only when the machine is stopped.

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Immediate stop alarm (Errors)	P17.33	Ovl mot fan	Fan motor overload error. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. The selected value will be stored and the screen will return to the previous menu. Note: requires association with a digital input. Check P18 menu.
	P17.34	High oil temp	High oil temperature error. Press 'ENTER'. Use the 'UP' and 'DOWN' buttons to set between Off or On. The selected value will be stored and the screen will return to the previous menu. Note: requires association with a digital input. Check P18 menu.

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8.8 INPUT AND OUTPUT SETTINGS

Control NET interface has a wide variety of options for setting inputs and outputs. While setting the input and output assignments on P18 menu, you must set the respective parameters in the other menus.

Example: If you want to set the digital input 2 of parameter P18.02 to "Oil filter differential pressure monitoring alarm", you must enable the oil filter differential pressure alarm function in parameter P16.22 on menu P16 (Warning alarm). In summary, remember to enable the desired function and associate it with an input or output.

Table 8.8.1 - Input and Output Settings

Name	Code	Text	Additional information
SETUP I/O	P18.01*↵	Function AO	Analog output function. Press 'ENTER'. Select the function according to the list. Press 'ENTER'. The selected value will be stored and the screen will return to the previous menu.
		Off	Analog output disabled
		Output pressure	Repeats compressor output pressure through a 4-20mA signal.
		Internal pressure	Repeats compressor internal pressure through a 4-20mA signal.
		Output temperature	Repeats the compressor unit discharge temperature through a 4-20mA signal.
		Main MTR curr	Repeats the main motor current through a 4-20mA signal.
		Fan MTR curr	Repeats the fan motor current through a 4-20mA signal.

Control NET has 7 configurable digital inputs. Each setting parameter of the digital inputs (E.g. P18.02) is followed by a parameter indicating the input active status (E.g. P18.03). Below is the list with all the configuration possibilities for each input. Each error or alarm condition uses a symbol along with the text indicating the selected option.

Note: When an alarm is triggered, an alert message will be displayed on the main interface screen. When an error is triggered, the product stops working and an error message is displayed on the interface main screen.

Table 8.8.2 - Input and Output Settings

Name	Code	Text	Additional information
SETUP I/O	P18.02 ~ 14*↵	Off	Disabled input
		Open door alarm	Alarm indicating that one of the equipment doors is open
		Open door failure	Error indicating that one of the equipment doors is open
		DP filter CAB	Alarm indicating high differential pressure on cabinet filters
		DP Air filter	Alarm indicating high differential pressure on air filter
		DP oil filter	Alarm indicating high differential pressure on oil filter
		DP separator	Alarm indicating high differential pressure on separator element
		Motor fan alarm	Alarm indicating fan motor failure
		Motor fan failure	Error indicating fan motor failure
		Purge alarm	Alarm indicating purge issues
		COLD water alarm	Alarm indicating cold water system issues
		Cold water failure	Error indicating cold water system issues
		Oil level alarm	Alarm indicating low oil level
		Oil level failure	Error indicating low oil level
		Belt failure	Error indicating a belt issue
		Dryer alarm	Alarm indicating dryer issues
		Dryer failure	Error indicating dryer issues
		ALM DP Pre-FLT	Alarm indicating that the pre-filter differential pressure is high
		Failure DP Pre-FLT	Error indicating that the pre-filter differential pressure is high
		ALM FTR Purge	Alarm indicating issues in the purge filter
		ALM SEP oil/WAT	Alarm indicating issues in the oil/water separator

↵ Press ENTER to access the sub-menus - *Editable only when the machine is stopped.

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SETUP I/O	P18.02 ~ 14*↵ (Continuation)	Exe SCH On/Off	Setting to enable or disable remote scheduling
		DI Remote Start	Setting to enable remote start
		Enable Load R	Setting to enable the remote load function
		REM Load/Relief	Setting to enable remote load/relief function
		Main MTR overload	Error indicating overload on main motor
		Alarm 1 SETUP	Setup 1 for user-defined alarm
		Alarm 2 SETUP	Setup 2 for user-defined alarm
		Alarm 3 SETUP	Setup 3 for user-defined alarm
		User Error 1	Setup 1 for user-defined error
		User Error 2	Setup 2 for user-defined error
		User Error 3	Setup 3 for user-defined error
		Water flow	Error indicating water flow failure
		Inverter failure	Error indicating frequency inverter failure
		High room temp	Alarm indicating high room temperature
		High temp main MTR	Error indicating main motor high temperature
		High output temp	Error indicating high output temperature
		Main MTR failure	Error indicating main motor failure
		Cool system failure	Error indicating cooling system failure
		Alarm FDB func	Alarm indicating issues in the feedback function
		Check immed stop	Error on immediate stop verification
		Reset Active Fault	Alarm on active fault verification
		Ovl mot inv fan	Fan motor inverter overload alarm
		Ovl mot inv fan	Fan motor inverter overload error
		Ovl mot vent	Fan motor overload alarm
		Ovl mot vent	Fan motor overload error
		High oil temp	High oil temperature alarm
		High oil temp	High oil temperature error
	P18.03 ~ 15*↵	Closed / Open	Input setting as normally open (Open) or normally closed (Closed). **Note: Normally means correct status, without failures.**

Control NET interface has 8 relay outputs in which 4 of them are configurable.
The settings options are as follows:

Table 8.8.3 - Input and Output Settings

Name	Code	Text	Additional information
SETUP I/O	P18.16 ~ P18.19*↵	Off	Relay output disabled
		Alarm	Powered in any alarm condition (not including start impediment conditions)
		Immediate stop	Powered for any active error (not including start impediment conditions)
		Group error	Powered for any alarm, start impediment error
		Alarm & Maintenance	Powered for any fault or maintenance alarm (not including start impediment conditions)
		Maintenance	Powered for any active maintenance alarm.
		Heater	Powered if the compressor unit discharge temperature reaches a value less than the start impediment temperature (for example +2°C). De-energizes if the temperature is above the start impediment temperature. Can be used to power an anti-condensation heater or as a low temperature auxiliary alarm.
		Purge NO	See parameters P11.09 and P11.10
		Fan	Powered in all conditions in which the main motor is running after starting. It can be used to power the contactor of a fan or internal or external ventilation system.
		Standby	Powered in all conditions in which the product is on a standby or cooling mode.
		In operation	Powered at all times when the main motor is running.
		On Load	Powered at all times when the compressor is on load
		Started	Powered in all situations where the compressor has started.
		Contr Fan	Enabled to operate under all conditions where the main motor is running except during its start. If enabled, to power the output, it will only power up if the load temperature exceeds the value of the Temp fan on (P12.17). If the temperature drops below the Temp fan off (P12.18) the output will be de-energized.
		Dryer Control	Powered at all times when the main motor is running.
		CR Start/Stop	Powered when remote start / stop is enabled.
		CR load/relief	Energized when remote load/relief input is enabled.
		Alarm NA	De-energized in any fault alarm condition (not including start impediment conditions)
		IMMED Stop NA	De-energized for any active error (not including start impediment conditions)
		Group failure NA	De-energized for any alarm, start impediment or active fault.
		Alarm maint. NA	De-energized for any fault or maintenance alarm (not including start impediment conditions)
		RST inv failure	Powered when digital input of "inverter failure" is not OK **Note: The relay output must be used in conjunction with an inverter digital input to reset the inverter.**
		Impediments	Powered whenever a start impediment condition is active
		Purge NC	See parameters P11.09 and P11.10

↵ Press ENTER to access the sub-menus - *Editable only when the machine is stopped.
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SETUP I/O	P18.20	ANA IN 1 FUNCT	Used to verify analog input function 1. **Can't edit it.**
	P18.21*	ANA IN 2 FUNCT	Parameter used to enable or disable analog input 2, which is responsible for measuring the equipment internal pressure. Press 'ENTER'. Use the 'UP and DOWN' buttons to set to Off, or internal pressure. Press 'ENTER'. The selected value will be stored in memory and the screen will return to the previous menu.
	P18.22*↵	ANA IN 3 FUNCT	Used to setup the function associated with analog input 3. Press 'ENTER'. Use the 'UP and DOWN' buttons to set to Off, Output Temp., Temp. dew point Press 'ENTER'. The selected value will be stored in memory and the screen will return to the previous menu. **Note: When the functions Output Temp. or Temp. dew point are enabled, all the logics associated with them are also enabled.**
	P18.23*	ANA input 3 Type	Selects the type of temperature sensor being used. Press 'ENTER'. Use the 'UP and DOWN' buttons to configure between KTY, PT100 or PT1000. Press 'ENTER'. The selected value will be stored in memory and the screen will return to the previous menu.
	P18.24*	ANA IN 5 FUNCT	Idem P18.22
		ANA input 5 Type	Idem P18.23

↵ Press ENTER to access the sub-menus - *Editable only when the machine is stopped.
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8.9 SENSOR SETTINGS

IMPORTANT

Incorrect sensor settings can influence product performance and safety functions.

Table 8.9 - Sensor Settings

Name	Code	Text	Additional information
CONFIG Sensor	P19.06*↵	Analog Input 1	Compressor output pressure. Press 'ENTER' to access the sub-menu.
	P19.06.05*↵	Offset medição	Use to calibrate the sensor offset. Press 'ENTER'. Use the 'UP and DOWN' buttons to set between the allowed values. Press 'ENTER'. The set value will be saved and the screen will return to the previous menu. **Note: To calibrate the offset, expose the sensor to the atmosphere and adjust the offset value until the value shown in P19.06.07 is 0.0 bar.**
	P19.06.06*↵	Measurement range	Use to calibrate the sensor's maximum measurement range. Press 'ENTER'. Use the 'UP and DOWN' buttons to set between the allowed values. Press 'ENTER'. The set value will be saved and the screen will return to the previous menu. **Note: to calibrate the maximum sensor range, apply a known pressure to the sensor and adjust the measurement range until the value shown in P19.06.07 reaches the applied value. The measurement range can be calibrated at a static pressure or by modifying the applied pressure.**
	P19.06.07	Analog Input 1	Output pressure. **Non-editable. Output pressure measured by the sensor.**
	P19.07*↵	Analog Input 2	Compressor internal pressure. Press 'ENTER' to access the sub-menu.
	P19.07.05*↵	Offset measurement	Use to calibrate the sensor offset. Press 'ENTER'. Use the 'UP and DOWN' buttons to set between the allowed values. Press 'ENTER'. The set value will be saved and the screen will return to the previous menu. **Note: To calibrate the offset, expose the sensor to the atmosphere and adjust the offset value until the value shown in P19.07.07 is 0.0 bar.**
	P19.07.07	Analog Input 2	Compressor internal pressure. Non-editable. Output pressure measured by the sensor.
	P19.08*↵	Analog Input 3	Output or discharge temperature in the compressor unit. Press 'ENTER' to access the sub-menu.
	P19.08.01*↵	Offset measurement	Use to calibrate the sensor offset. Press 'ENTER'. Use the 'UP and DOWN' buttons to set between the allowed values. Press 'ENTER'. The set value will be saved and the screen will return to the previous menu.
	P19.08.03	Analog Input 3	**Non-editable. Output temperature value in the compressor unit measured by the sensor.**
	P19.04*↵	Main MTR curr	Main motor current. Press 'ENTER' to access the sub-menu.
	P19.04.01*↵	Main MTR CT Range	Transformation ratio of the main motor current sensor. Press 'ENTER'. Use the 'UP and DOWN' buttons to set between the allowed values. Press 'ENTER'. The set value will be saved and the screen will return to the previous menu. **Note: The value set in this parameter must be the same as the current transformer used for main motor current measurement.**
	P19.04.02*↵	TC Winding	Winding the current transformer. Press 'ENTER'. Use the 'UP and DOWN' buttons to set between the allowed values. Press 'ENTER'. The set value will be saved and the screen will return to the previous menu. **Note: The value set in this parameter must correspond to the number of turns given with the main motor power cable inside the current transformer.**
	P19.04.03*↵	Measurement range	Use to calibrate the sensor's maximum measurement range. Press 'ENTER'. Use the 'UP and DOWN' buttons to set between the allowed values. Press 'ENTER'. The set value will be saved and the screen will return to the previous menu.
	P19.04.04*↵	Main MTR curr	**Non-editable. This parameter displays the value of the main motor current being measured by the sensor.**

↵ Press ENTER to access the sub-menus - *Editable only when the machine is stopped.
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SETUP Sensor	P19.05*↵	MTR fan curr	Fan motor current. Press 'ENTER' to access the sub-menu.
	P19.05.01*↵	MTR fan curr	Transformation ratio of the fan motor current sensor. Press 'ENTER'. Use the 'UP and DOWN' buttons to set between the allowed values. Press 'ENTER'. The set value will be saved and the screen will return to the previous menu.
	P19.05.02*↵	TC Winding	Winding the current transformer. Press 'ENTER'. Use the 'UP and DOWN' buttons to set between the allowed values. Press 'ENTER'. The set value will be saved and the screen will return to the previous menu. **Note: The value set in this parameter must correspond to the number of turns given with the main motor power cable inside the current transformer.**
	P19.05.03*↵	Measurement range	Use to calibrate the sensor's maximum measurement range. Press 'ENTER'. Use the 'UP and DOWN' buttons to set between the allowed values. Press 'ENTER'. The set value will be saved and the screen will return to the previous menu.
	P19.05.04*↵	MTR fan curr	**Non-editable. This parameter displays the value of the fan motor current being measured by the sensor.**
	P19.09*	Analog Input 5	Dew point temperature of the air dryer integrated into the compressor. Press 'ENTER' to access the sub-menu.
	P19.09.01*	Offset measurement	Use to calibrate the sensor offset. Press 'ENTER'. Use the 'UP and DOWN' buttons to set between the allowed values. Press 'ENTER'. The set value will be saved and the screen will return to the previous menu.
	P19.09.03*	Analog Input 5	**Non-editable. Dew point temperature value of the air dryer integrated into the compressor.**

↵ Press ENTER to access the sub-menus - *Editable only when the machine is stopped.
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8.10 DIAGNOSIS

The diagnosis menu allows access and testing of digital inputs, relay analog outputs, analog inputs of current transformers, phase control inputs (frequency, angle and sequence) and membrane film buttons.

Table 8.10 - Diagnosis

Name	Code	Text	Additional information
Diagnosis	P20.01	Digit Input 1	Diagnosis of digital inputs. Information on the display toggles between the digital input number and the current input value. Press 'ENTER' to check what the input refers to and its status. Possible conditions for digital inputs: Inactive = OK Active = Not OK
	P20.02	Digit Input 2	
	P20.03	Digit Input 3	
	P20.04	Digit Input 4	
	P20.05	Digit Input 5	
	P20.06	Digit Input 6	
	P20.07	Digit Input 7	
	P20.08	Digit Input 8	
	P20.09	Analog input 1 (mA)	Diagnosis of analog inputs. Information on the display will switch between the analog input number and the measured value (mA, resistive, current or voltage) for the analog input. Press 'ENTER' to check which magnitude is being measured and its current value (E.g. Output pressure, 7.3 bar).
	P20.10	Analog Input 2 (mA)	
	P20.11	Analog Input 3 (resistive)	
	P20.12	Analog Input 3 (current)	
	P20.13	Analog Input 3 (voltage)	
	P20.14	Entr analóg 4 (voltage)	Control NET supply voltage (X13). Information on the display will switch between the analog input number and the measured voltage value. **Note: Analog input 4 has no other function other than to display the value of the interface supply voltage.**
	P20.15	Analog Input 5 (resistive)	**Note: Only visible when analog input 5 is detected.** Diagnosis of analog inputs. Information on the display will switch between the analog input number and the measured value. Press 'ENTER' to check which magnitude is being measured and its corresponding current value (Ex: dew point temperature, 2.5°C).
	P20.16	Analog Input 5 (current)	
	P20.17	Analog Input 5 (voltage)	
	P20.18*↵	Relay output 1	Press 'ENTER' and use 'UP' and 'DOWN' to power and de-energize the relay
	P20.19*↵	Relay output 2	
	P20.20*↵	Relay output 3	
	P20.21*↵	Relay output 4	
	P20.22*↵	Relay output 5	
	P20.23*↵	Relay output 6	
	P20.24*↵	Relay output 7	
	P20.25*↵	Relay output 8	
	P20.26*↵	Analog output 1	Press 'ENTER' and use 'UP' and 'DOWN' to set the output mA value
	P20.27	Analog Input CT1A	Current value in phase A of the main motor
	P20.28	Analog Input CT1B	Current value in phase B of the main motor
	P20.29	Analog Input CT1C	Current value in phase C of the main motor
	P20.30	Analog Input CT2A	Fan motor current value
	P20.31	Frequency L1	Voltage frequency in phase L1
	P20.32	Frequency L2	Voltage frequency in phase L2
	P20.33	Frequency L3	Voltage frequency in phase L3
	P20.34	Angle phase L1	Voltage angle of phase L1
	P20.35	Angle phase L2	Voltage angle of phase L2
	P20.36	Angle phase L3	Voltage angle of phase L3
	P20.37*↵	Key test	Press 'ENTER' and then the membrane buttons to verify their operation
	P20.38*↵	LED Test	**Note: only enabled when the LED module is detected.** Press 'ENTER' and select 'off' or 'on'. When 'on' the LEDs will be lit sequentially until 'off' is selected.

↵ Press ENTER to access the sub-menus - *Editable only when the machine is stopped.
Reading and editing with keyboard or ECO card

8.11 SCHEDULING

Scheduling is a Control NET interface function that enables pre-programing certain periods for the compressor to turn on and off with specific load and relief pressures.

Table 8.11 - Scheduling

Name	Code	Text	Additional information
Run schedule	P21.01↵	Run schedule	Press 'ENTER' and use the 'UP' or 'DOWN' buttons to select 'On' or 'Off'. This parameter enables or disables the scheduling function.
	P21.02 ↵	Business day edition	Press 'ENTER' to access sub menu P21.02.## Weekday edition is used to associate each day of the week as a business day, which may vary from company to company. Use the sub-menu to perform the association properly. **Note:** **Business day = numerical value... Monday = 1** **Tuesday = 2** **Wednesday = 3** **Thursday = 4** **Friday = 5** **Saturday = 6** **Sunday = 7 Non-business day = #** For example: if business days are from Monday to Friday and the non-business days are Saturday and Sunday, after setup, P21.02 must display 12345 ##
	P21.02.01 ↵	Monday	Press 'ENTER' and use the 'UP' or 'DOWN' buttons to select business day (weekday) or non-business day (weekend). Information will be stored and the screen will automatically return to menu P21.02.01
	P21.02.02 ↵	Tuesday	Press 'ENTER' and use the 'UP' or 'DOWN' buttons to select business day (weekday) or non-business day (weekend). Information will be stored and the screen will automatically return to the previous menu.
	P21.02.03 ↵	Wednesday	
	P21.02.04 ↵	Thursday	
	P21.02.05 ↵	Friday	
	P21.02.06 ↵	Saturday	
	P21.02.07 ↵	Sunday	
	P21.03	Reset parameters	Select 'YES' to reset all set schedules
	P21.04	Schedule entry	Press 'ENTER' to access sub menu P21.04.## **Note: Schedule entry options include Off, every Monday, every Tuesday, every Wednesday, every Thursday, every Friday, every Saturday, every Sunday, every day, every business day, every non-business day, set date.** Regardless of the menu line used to insert a new schedule, the scheduling lines will be rearranged chronologically.
	P21.04.01 ↵	Frequency	Press 'ENTER' and use the 'UP' or 'DOWN' buttons to select from Off, every Monday, every Tuesday, every Wednesday, every Thursday, every Friday, every Saturday, every Sunday, every day, every business day, every non-business day, set date and press 'ENTER'. The value will be stored and the screen will return to the previous menu.
	P21.04.02	Function	Pressione 'ENTER' e use os botões 'CIMA' ou 'BAIXO' para selecionar entre os valores possíveis, pressione 'ENTER' para armazenar o valor e retornar para o penu P21.04.02 **Nota: Part PC/PA padr: partir o equipamento utilizando as pressões de carga e alívio nominais.** **Part PC/PA Agend: partida do equipamento utilizando as pressões de carga e alívio configuradas no menu agendamento.** **Parada do equipamento: compressor irá desligar na hora agendada.**
	P21 04.03	Load pressure	Press 'ENTER' and use the 'UP' or 'DOWN' buttons to select among the possible values, press 'ENTER' to store the value and return to menu P21.04.02 **Note: Standard Part PC/PA: start the equipment using nominal load and relief pressures.** **Scheduled Part PC/PA: start the equipment using the load and relief pressures set in the scheduling menu.** **Equipment stoppage: compressor will shut down at the scheduled time.**
	P21.04.04	Relief pressure	Press 'ENTER' and use the 'UP' or 'DOWN' buttons to select between possible values, press 'ENTER' to store the value and return to menu P21.04.04.
	P21.03.08 ↵	Time	Press 'ENTER' and use the 'UP' or 'DOWN' buttons to select between possible values, press 'ENTER' to store the value and return to menu P21.04.08 **Note: This parameter selects the time of day that the schedule will run.**
	P21.03.08 ↵	Save data	Saves the set schedule values.

↵ Press ENTER to access the sub-menus - *Editable only when the machine is stopped.
Reading and editing with keyboard or ECO card

8.12 INTEGRATED COMPRESSOR MANAGER (GCI)

The GCI (Integrated Compressor Manager) control algorithm in the Control NET electronic interface is compatible with all Schulz electronic-interface compressors and with a built-in serial communication port, as well as third-party compressors with the Airbus485 communication protocol or Multi485. Schulz analog compressors or products from other brands without the informed communication protocol can be connected to the GCI with the installation of the compressor communication card (012.2019-0/AT).

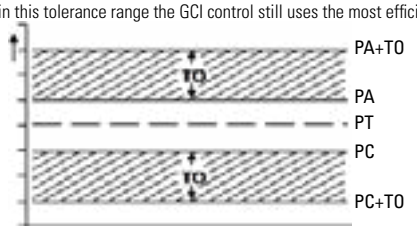
Compressed air networks have fluctuations in air demand and pressures that increase and decrease in response to fluctuation in demand. GCI control ensures that a compressor network operates as if it were just one equipment, providing an efficient balance between equipment use and network pressure. In air networks that do not have a management system, this balance represents a considerable opportunity to reduce costs and power consumption.

The primary function of the GCI control is to maintain the pressure between a configurable maximum value and a minimum value, by combining compressors more efficiently. GCI control calculates a target pressure that is used as the rated pressure for the air network. The rates of pressure variation are largely determined by the volume of the air tanks and abrupt changes in air demand. These features vary from installation to installation. To adapt to these features, there are parameters such as tolerance and Damping that will be explained in detail next.

The multi-compressor control set (012.2018-0/AT) is an optional kit consisting of a power supply, a pressure sensor and a communication board, whose function is to obtain the pressure of the air network in a network with up to 8 compressors. The communication board must be installed in the electrical box of one of the compressors and connected in the data communication network together with the other equipment. The pressure sensor shall be installed at a point of the air network used by all compressors to provide control pressure information to the GCI.

For more information on the multi-compressor control set, please contact the nearest SCHULZ DISTRIBUTOR.

Table 8.12 - Integrated Compressor Manager

Name	Code	Text	Additional information
Integrated Compressor Manager	P12.15 ↵	GCI Available	Select ON or OFF to enable or disable the GCI function. By enabling the GCI function, P80, P81 and P82 menus are enabled.
	P80.01 ↵	GCI enabled	On, on with stop function or off (use of GCI reset function) Note 1: If On - if subsequently the GCI is unavailable for any reason, product control is local again. Note 2: If On with stop function - If GCI is subsequently switched off (via a stop control routine as described above), the GCI function remains in control of all compressors by placing them in relief or Off mode (the compressor shutdown time will be the stop time set locally).
	P80.02 ↵	Relief pressure	GCI control relief pressure. Relief pressure range: not less than 0.2bar above load pressure.
	P80.03 ↵	Load pressure	GCI control load pressure. Range: sensor range and follows the protection limits of each compressor locally, that is, overpressure and alarm pressures take precedence over the GCI operating pressure.
	P80.04 ↵	GCI rotation range	GCI rotation range or sequence interval. Range: 1 to 720 hours. Standard 24 hours.
	P81.01 ↵	# compressor GCI	Number of compressors controlled by GCI. Range: 2 to 8 compressors. Standard: 4 compressors.
	P81.02 ↵	GCI start delay	Start delay time. Range: 0 to 60s. Standard: 3s Operation: when the GCI is started the compressors will be loaded, according to requirements, respecting the time interval set in this parameter. The purpose of this function is to prevent starting several compressors at the same time, especially when the system is starting.
	P81.03 ↵	Damping GCI	Damping. Range: 0.1-10 bar. Standard: 1.0 bar. In situations where placing only a new compressor under load is not enough to supply the required air demand, an additional GCI reaction is required, as long as the pressure is outside the tolerance ranges. The time until a new compressor is loaded, to increase generation capacity, will be calculated dynamically depending on the urgency of the situation. GCI's dynamic reaction algorithm is set as standard to meet the needs of most installations. In some situations, as in the following examples, pressure variations can be very aggressive and disproportionate: a) Inadequate air volume (tank volume) b) Very high air treatment differential pressure c) Air network with improper size d) Delay in compressor response In these situations, GCI can act improperly, putting a new compressor under load without necessity, as the initial compressor would still be in a start phase, without contributing to generate compressed air. If an increase in the tolerance range is not enough, the GCI's dynamic reaction can be influenced by increasing Damping (DA), reducing the likelihood of an unnecessary reaction. Damping is adjusted on a scale of from 0.1 to 10, with 1 as standard. A factor of 0.1 equals keeping the reaction 10 times faster than the standard, and a factor of 10 equals a reaction 10 times slower than the standard.
	P81.04 ↵	GCI Tolerance	Tolerance is a pressure range above and below control pressures where pressure can be identified when abrupt changes in air demand occur. Within this tolerance range the GCI control still uses the most efficient control.  Tolerance is expressed as a pressure that sets the tolerance range width, as shown above. For example, if Tolerance is set at 3psi (0.2bar), it means that GCI will implement an efficient response during a deviation of 3psi below the load pressure. If pressure falls below the tolerance limit, GCI will adopt an emergency response until the pressure returns to normal levels. If the volume of the air tanks is inadequate, or fluctuations in air demand are significantly large, it is recommended to increase the tolerance value to maintain efficient control. If the tank volumes are large, pressure variations are small and the demand fluctuations are insignificant or gradual, then, tolerance can be reduced to optimize pressure control.
	P82.01	Priority comp1 to 8	Priority for compressors from 1 to 4, with 1 being the highest priority and 4 being the lowest priority, up to a maximum of 8 compressors.

↵ Press ENTER to access the sub-menus.
Reading and editing with keyboard or ECO card

9.1 ERROR MESSAGES AND ALARMS

Description: A: Alarm E: Error (Immediate Stop) S: Error (Immediate Stop R: Operation Impediment

Table 9.1 - Error Messages and Alarms

Failure code	Text message	Additional information
A:0030	Open door	Alarm: Cabinet doors open
A:0031	ALM PD FTR CAB	Alarm: Cabinet filters differential pressure
A:0040	Oil level alarm	Alarm: Oil level alarm
A:0050	Alarm SEC	Alarm: Cooling dryer
A:0070	Motor fan alarm	Alarm: Fan motor
A:0083	Phase Unbalance	Alarm: Motor phase unbalance
A:0085	Motor starts 24HRS	Alarm: Number of motor starts in the last 24 hours exceeded
A:0119	High Discharge pressure	Alarm: High compressor discharge pressure
A:0129	High discharge temp	Alarm: High compressor air outlet temperature
A:0139	High Int. Pressure	Alarm: High internal pressure
A:0200	Cold water alarm	Alarm: Cooling water
A:0201	Purge Alarm	Alarm: Purge operation alarm
A:0809	High Diff. Pressure	Alarm: Differential pressure Air/oil tank - discharge) high
A:0901	Alarm setup 1	Alarm: Alarm setup 1 (alarm set by the user)
A:0902	Alarm setup 2	Alarm: Alarm setup 2 (alarm set by the user)
A:0903	Alarm setup 3	Alarm: Alarm setup 3 (alarm set by the user)
A:2030	Air Filter DP	Alarm: High differential pressure in air filter
A:2032	Line Filter DP	Alarm: High differential pressure in line filter
A:2035	Separator Elem. DP	Alarm: High differential pressure in separator element
A:2040	Oil filter DP	Alarm: High differential pressure in oil filter
A:2201	Line FTR purge Alarm	Alarm: Check line filter purge
A:2240	Water/Oil Sep. Alarm	Alarm: Check water/oil separator
A:2816	Power failure	Alarm: Machine stopped due to power failure
A:2831	Airbus RS485 HW	Alarm: Check communication board (Airbus RS485)
A:2832	Airbus RS485 HW	Alarm: Check communication board (Airbus RS485)
A:2836	RTC error	Alarm: Real-time clock failure
A:2970	GCI DI Alarm	Alarm: GCI digital input (integrated compressor manager) triggered
A:4804	Maintenance	Alarm: Maintenance
A:4805	Cabinet filters	Alarm: Cabinet filters
A:4806	Air filter Maint.	Alarm: Air filter maintenance
A:4807	Oil filter Maint.	Alarm: Oil filter maintenance
A:4808	Sep. Elem. Maint.	Alarm: Separator element maintenance
A:4809	Greasing	Alarm: Re-grease main motor bearings
A:4810	Valves Maint.	Alarm: Valve maintenance
A:4811	Belts Maint.	Alarm: Belt maintenance
A:4812	Electrical panel Maint.	Alarm: Electrical panel maintenance
A:4813	Maint. Motor Bearings	Alarm: Maintenance on main motor bearings
A:4814	Maint. Comp. Unit Bearings	Alarm: Maintenance on compressor unit bearings
A:4815	Weekly Maint.	Alarm: Perform weekly maintenance
A:4816	Annual Maint.	Alarm: Perform annual maintenance
A:4817	Bi-annual Maint.	Alarm: Perform bi-annual maintenance
A:5000	Technical Assist.	Alarm: Contact technical assistance
E:0010	Emergency	Immediate Stop: Emergency button pressed
E:0030	Open door	Immediate stop: Compressor door open
E:0040	Oil level	Immediate Stop: Oil level alarm
E:0050	Alarm SEC	Immediate Stop: Cooling Dryer
E:0060	Belt Maint.	Immediate Stop: Maintenance on belt (s)
E:0070	Fan motor failure	Immediate stop: Fan motor failure
E:0080	Short circuit on main motor	Immediate stop: Short circuit on main motor
E:0081	Blocked motor	Immediate stop: Main motor shaft locked
E:0082	Main motor Overload	Immediate stop: Main motor overload
E:0083	Unbalanced main MTR phase	Immediate stop: Main motor phase unbalance
E:0084	Main MTR curr. sen.	Immediate stop: Main motor current sensor failure

E:0085	Fan MTR curr. sen.	Immediate stop: Fan motor current sensor failure
E:0086	Fan Motor Overload	Immediate Stop: Fan Motor Overload
E:0090	Phase Sequence	Immediate Stop: Main motor phase sequence
E:0091	L1 phase failure	Immediate stop: Phase failure on main motor (L1)
E:0092	L2 phase failure	Immediate stop: Phase failure on main motor (L2)
E:0093	L3 phase failure	Immediate stop: Phase failure on main motor (L3)
E:0115	Pressure sens. failure	Immediate stop: Discharge pressure sensor failure
E:0119	High discharge pres.	Immediate Stop: High discharge pressure
E:0125	Failure temp. sens.	Immediate stop: Temperature sensor failure
E:0129	High output temp	Immediate stop: High temperature
E:0131	Low internal pres.	Immediate Stop: Low internal pressure
E:0135	Int. pres. sens. failure	Immediate stop: Internal pressure sensor failure
E:0139	High int. pres.	Immediate Stop: High internal pressure
E:0184	Cooling failure	Immediate stop: Cooling failure
E:0200	Cooling water failure	Immediate Stop: Compressor cooling water failure
E:0229	Fast temp. increase	Immediate Stop: Very high discharge temperature increase rate
E:0809	High dif pres.	Immediate stop: High differential pressure
E:0814	Cooling failure	Immediate stop: Cooling failure
E:0821	Short circuit	Immediate stop: Short circuit
E:0846	Discharge pres. sens. range	Immediate Stop: Discharge pressure sensor range
E:0856	Int. pres. sens. range	Immediate Stop: Internal pressure sensor range
E:0901	Failure user 1	Immediate Stop: Immediate stop 1 set by user
E:0902	Failure user 2	Immediate Stop: Immediate stop 2 set by user
E:0903	Failure user 3	Immediate Stop: Immediate stop 3 set by user
E:2032	Line filter DP	Immediate Stop: Line filter differential pressure
E:2915	GCI pres. sens.	Immediate Stop: GCI pressure sensor
E:2950	GCI pres. sens. range	Immediate Stop: GCI pressure sensor range
E:2960	GCI Communication	Immediate Stop: Communication failure with GCI module
E:2980	GCI Dig. Input	Immediate Stop: GCI digital input
E:3230	Open doors	Immediate Stop: Cabinet doors open
E:5002	Technical assist.	Immediate Stop: Contact Schulz Technical Assistance
R:3123	Low temp.	Operating impediment: Low discharge temperature
R:3137	High int. Pres.	Operating impediment: High internal pressure
S:3500	Start imp.	Start impediment: Operator
S:3501	Start imp.	Start impediment: Open door

9.2 LANGUAGE CODES

Table 9.2 - Language Codes

Code	Language
EN	English
BEL	Belarusian
BRA	Portuguese (BRA)
CZE	Czech
DE	German
ES	Spanish
FR	French
GRE	Greek
IT	Italian
JPN	Japanese
KOR	Korean
NL	Dutch
PER	Persian
PL	Polish
PT	Portuguese Portugal)
RU	Russian
TH	Thai
TR	Turkish
UKR	Ukrainian
VI	Vietnamese
ZH (S)	Simplified Chinese
ZH (T)	Traditional Chinese

9.3 EVENT LIST

Each stored event (P04.01.01 - P04.01.200) includes an index, event description, and time and date that the event occurred. Examples:

- Pressed start button
- Pressed stop button
- Dryer On
- Admin user enabled
- Modified parameter

9.4 PARAMETERS FOR SETTING UP START AND/OR LOAD SOURCE

Parameters (notes):

- Discharge pressure sensor (standard)
- Digital input (requires setting an available digital input)
- Serial port with Airbus485™ protocol
- Serial port with MODBUS protocol
- Ethernet communication port TCP/IP (requires ethernet communication port, optional for some product models)
- Modified parameter

9.5 USING MENUS AND PARAMETERS

Users of the Control NET electronic interface should notice that the menus are arranged sequentially from P00 to P99. However, some menus are intentionally omitted. This can happen for many reasons and is perfectly normal.

Numbers of the menus and their names are shown below:

Table 9.5 - Menus and Parameters

Number	Menu name	Number	Menu name	Number	Menu name
P00	Start	P10	Equipment 1 settings	P20	Diagnosis
P01	Hour Meters	P11	Equipment 2 settings	P21	Run scheduling
P02	Usage	P12	Equipment 3 settings	P30	Table of compressors
P03	Error list	P13	FLEX Settings	P40	User 1 settings
P04	Event list	P14	Motor protection	P60	LED Settings
P05	Service provider	P15	Impediments	P80	GCI main menu (manager)
P06	Interface Data	P16	Warning alarms	P81	GCI Settings (Manager)
P07	Compressor data	P17	Immediate stop alarms	P82	GCI Priority (Manager)
P08	Message codes	P18	Input and output settings		
P09	Access	P19	Sensor settings		

9.6 EQUIPMENT CONDITIONS OR STATUS CODES

Table 9.6 - Equipment Conditions or Status Codes

Number	State
01	**Stopped equipment** The stopped equipment status always occurs after an immediate stop condition. This status can only be removed from the interface when the immediate stop condition that originated it is solved.
02	**Powering up** Control NET Interface boot
03	**Start impediment** A start impediment is usually associated with a start impediment condition, such as an impediment related to open cabinet door, low temperature or elevated internal pressure.
04	**Ready to start**
05	**Cooling** When set, a cooling status precedes the start of the compressor. Cooling time is a period used to ensure that the compressor internal pressure has reached a value low enough to enable the compressor to start safely. Note: Factory-set cooling time ensures that the compressor is started safely. This value should not be changed by the user.
06	**Standby** Other conditions may prevent the compressor from starting. When this condition is active the interface announces that the equipment is waiting for the condition that prevents the start of the compressor to be solved. These conditions may occur during normal equipment operation. For example, if the start button is pressed at the time the compressor discharge pressure is greater than the set load pressure, the compressor will remain in standby until the discharge pressure is lower than the load pressure.

07	**Main motor starting sequence** The start of the main motor is commonly associated with the start time of the main motor that precedes any equipment load status. For example: in a constant speed compressor, this is the star/delta start time added to the equipment load delay time.
08	**Relief operation, load delay time** When set, the load delay time precedes the first time the compressor goes into load, after the main motor starts (see P11.02).
09	**On-load operation**
10	**Funcionamento em alívio, tempo de recarga** Quando configurado, o tempo de recarga precede o retorno do funcionamento em carga do equipamento (veja: P11.03)
11	**Relief operation, reload time** Operation in relief condition is usually associated with managing the number of main motor starts per hour.
12	**Relief operation, stoppage time** Relief operation in stoppage time condition is usually associated with a main motor stoppage and the return of the equipment to ready-to--start condition. The stoppage time value must be enough for the compressor to perform all of its mechanical stoppage functions that must be performed before the main motor stops. After this period, the equipment will return to ready to start status (see: P11.05).

10. LIST OF ABBREVIATIONS

Abbreviation	Text	Abbreviation	Text
ACTIVE	Active or enabled	MANUF	Manufacturer
ADCT	Compressor unit discharge temperature	MAR	March
ADV	Automatic purge valve	MAX	Maximum
AI	Analog input	MAY	May
AIR	Air	MDL	Model
ALM	Alarm or alarm message	META	Manager
AMB	Environment	MIN	Minimal
ANAL	Analog	MIN'S	Minutes
AO	Analog output	MMT	Measurement
APR	April	MON	Monday
AUG	August	MOD	Modulation
AUTO	Automatic	MOTOR	Motor
AVAIL	Available	MOPS	Motor overload protection switch
BRG	Bearing (s)	MPA	Mega Pascal
BELT	Belt	MPV	Minimum pressure valve
BIN	Binary	MTH	Month (s)
BUVV	Butterfly valve	NC	Normally closed
CAB	Cabinet	NO	Normally open
CBV	Bypass valve	NOM	Rated
CFG	Settings	NUM	Number
CLK	Clock	OCT	October
CLR	Heat exchanger	OIL	Oil
CNDS	Condensed	OK	Safe or normal
COOL	Cooling	OVLD	Overload
COMP	Compressor	OPT	Optimal
COMMS	Communication	OR	Operating Range
COP	Change Point	OP CRT	Open circuit
CO BK	Continuous brake	OS	Oil separator
CO	Compressor output	OSD	On screen
CONFIG	Setup or settings	OUT	Output
CONT	Contactor	P#	Parameter 0, 1, 2, ...
CORR	Correction	PARA	Parameter
CT	Current Sensor	PD	Equipment discharge
CURR	Current	PERMS	Allowed
CW	Cooling water	PLC	Preprogrammed logic controller
CWT	Cooling water temperature	PR	Pressure
DAY	Day	PRESS	Pressure

Abbreviation	Text	Abbreviation	Text
DEC	December	PROT	Protection
DEF	Standard	PRV	Relief Valve
DI	Digital input	PSENS	Pressure Sensor
DISCH	Discharge	PSWITCH	Pressure switch
DIFF	Differential	PV	Pressure vessel
DP	Differential pressure	REF	Cooling
DT	Differential temperature	RNG	Range
DIR	Direction	RAM	Random access memory
DO	Digital output	RB	Remote bus
DOL	Direct start	RC	Remote contact
DIR ROTO	Direction or rotation	RD	Cooling dryer
DELTA P	Differential pressure	READY	Ready
DEL	Delivery	REF	Cooling
DEL PO	Output pressure offset	REM	Remote
DEL PR	Output pressure range	RPM	Revolutions per minute
DELTA T	Differential temperature	RT	Operating hours
DRN	Purge	RTC	Real time clock
Dryer	Dryer (cooling dryer)	SAT	Saturday
DST	DST	SC	Short circuit
ELEC	Electric	SCH	Scheduling
EQUIP	Equipment	SDTTF	Y/Δ time transition factor
ERR	Error	SEC	Second (s)
EXT	External	SEP	Separator or September
FAULT	Failure	SEQ	Sequence
FEB	February	SEP FIL	Separator filter
FTR	Filter	SERV	Maintenance
FM	Frequency of modulation	SN	Serial Number
FRI	Friday	SP	Switching point
FUNCT	Function	SPD	Speed
H	Hours	STAGE	Stage
HR	Hours	STOP	Stopped
HRS	Hours	STR	Start (s)
INH	Impediment	SUN	Sunday
IIPT	Input	SYS	System
INT	Internal	TEMP	Temperature
INT PRESS	Internal pressure	THU	Thursday
INTVL	Interval	TIMEV	Time valve
IMB	Unbalance	TNS	Voltage
IMM	Immediate	TRANS	Transmission
GCI	Integrated compressor manager	TT	Transition time
JAN	January	TUE	Tuesday
JULY	July	UOM	Unit of measurement
JUNE	June	VS	Variable speed
K	Kelvin	LOCAL	Local
LUB	Lubrication		

10. DESCRIPTION OF SYMBOLS

The Control NET electronic interface uses a variety of symbols next to texts that indicate conditions or status of the equipment. Symbols can be used individually or in conjunction with other symbols to describe a specific message. The table below describes each of the symbols and their meaning:

Table 10.1 - Description of Symbols

Symbol	Description	Symbol	Description	Symbol	Description
	Compressor Management		Phase angle		Immediate stop
	Remote control		Above or below range		Caution
	Start impediment		Fan		Status (Animated)
	On-load operation		Relief operation		Stopped
	Operation impediment		Load impediment		Purge
	Time		Edition		Sensor
	Temperature		User configurable		Compressor or cabinet
	Key		Scheduling		Timer
	Motor		Range or detection		Total hours
	Set point		Set point, upper limit		Set point, lower limit
	Oil		Read-only		Unblocked or accessible
	Blocked or non-accessible		Date		Star / delta
ΔP	Pressure variation	ΔP	Up	ΔP	Auto restart
	Filter		Down		Audible alarm
	Maintenance		Stopped		Time
	Set point		Input		Output
	Emergency stop		Next page		Previous page
?	Status	?	Compressor unit	?	Frequency
	DST		Water		Control NET electronic interface
mA	Output 4-20mA	mA	Number or frequency	mA	Percentage
	Medium		Cabinet door open		Analog
	Up		Down		Enter
	Stopped		Start		Edition
	Lower than		Higher then		Last 24 hours
	Starts in last 24 hours		Start in last hour		Last hour
	Normally open / closed		Digital input		Relay output
	Phase, L1		Phase, L2		Phase, L3
	Phase		Current Sensor		Running (Animated)
A	Analog value		Network or system	A	Input
	Separator element	A	Valve		Belt coupling
	Power		Pressure set point		Yes