GE Energy

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Room ventilation with frequency converter ACS 350, ACS 550

There is possibility to change the settings of the frequency converter for installations in countries with 60Hz. An increase of the frequency will improve the air-cooling for the room.

The following tables are part of the commissioning checklist. The marked parts are new in the checklist and show the possibilities to modify the settings.

7.16 Frequency converter ACS 350 / 7.16.1 Parameter list for fan drive

Code	Name	Bereich Range	Auflösung Resolution	Standard Default	Benutzer User	S
99	**DATEN** START-UP DATA					
99.07	MOTORNENNFREQUENZ MOTOR NOM FREQUENCY	10...500 Hz 50 or 60 Hz according to Technical Schematic Room Ventilation	0,1 Hz	50,0 Hz 60Hz	.....	
99.08	MOTORNENNDREHZAHL MOTOR NOM SPEED	50...30000 Upm equal to the value on the fan motor rating plate	1 Upm	1440 Upm rpm 1750 Upm rpm	.....	
11	**SOLLWERT AUSWAHL REFERENCE SELECTION**					
11.05	EXT SOLLW. 1 MAXREF1 MAX	0...500 Hz / 0...30000 Upm 50 or 60 Hz according to Technical Schematic Room Ventilation	0,1 Hz / 1 Upm	50 Hz / 1500 rpm US:60 Hz/1800 Upm	.....	
12	**Konstantdrehzahl CONSTANT SPEED**					
12.02	FESTDREHZ 1 CONSTANT SPEED 1	0...30000 Upm / 0...500 Hz 50 or 60 Hz according to Technical Schematic Room Ventilation	1 Upm / 0,1 Hz	300 Upm / 5 Hz US:360 Upm / 6 Hz	.....	
12.04	FESTDREHZ 3 CONSTANT SPEED 3	0...30000 Upm / 0...500 Hz 50 or 60 Hz according to Technical Schematic Room Ventilation	1 Upm /0,1 Hz	900 Upm / 15Hz US:1080 Upm / 18Hz	.....	
15	**Analogausgänge ANALOGUE OUTPUTS**					
15.03	AO 1 WERT MAX AO 1 CONTENT MAX	- 50 or 60 Hz according to Technical Schematic Room Ventilation	1 Hz	0	.....	
20	**GRENZEN LIMITS**					
20.02	MAXIMAL DREHZAHL MAXIMUM SPEED	0...30000 Upm equal to the value on the fan motor rating plate	1 Upm	1500 Upm/US: 1800 Upm	.....	

20.08	MAXIMUM FREQ	0...500 Hz 50 or 60 Hz according to Technical Schematic Room Ventilation	0,1 Hz	50 Hz / US: 60 Hz	.....	

7.16 Frequency converter ACS 550 / 7.16.1 Parameter list for fan drive

Code	Name	Bereich Range	Auflösung Resolution	Standard Default	Benutzer User	S
99	**DATEN** START-UP DATA					
99.07	MOTORNENNFREQUENZ MOTOR NOM FREQUENCY	10,0...500 Hz 50 or 60 Hz according to Technical Schematic Room Ventilation	0,1 Hz	50,0 Hz US: 60 Hz	.....	
99.08	MOTORNENNDREHZAHL MOTOR NOM SPEED	50...18000 Upm equal to the value on the fan motor rating plate	1 Upm	1440 Upm rpm US: 1750 Upm rpm	.....	
11	**SOLLWERT AUSWAHL REFERENCE SELECTION**					
11.05	EXT SOLLW. 1 MAXREF1 MAX	0...500 Hz / 0...30000 Upm 50 or 60 Hz according to Technical Schematic Room Ventilation	0,1 Hz / 1 Upm	50 Hz / 1500 rpm US:60 Hz/1800 Upm	.....	
12	**Konstantdrehzahl CONSTANT SPEED**					
12.02	FESTDREHZ 1 CONSTANT SPEED 1	0...30000 Upm / 0...500 Hz 50 or 60 Hz according to Technical Schematic Room Ventilation	1 Upm / 0,1 Hz	300 Upm / 5 Hz US:360 Upm / 6 Hz	.....	
12.04	FESTDREHZ 3 CONSTANT SPEED 3	0...30000 Upm / 0...500 Hz 50 or 60 Hz according to Technical Schematic Room Ventilation	1 Upm /0,1 Hz	900 Upm / 15Hz US:1080 Upm / 18Hz	.....	
15	**Analogausgänge ANALOGUE OUTPUTS**					
15.03	AO 1 WERT MAX AO 1 CONTENT MAX	- 50 or 60 Hz according to Technical Schematic Room Ventilation	-	Definiert durch Par. 01.03 Defined by par. 01.03	.....	
20	**GRENZEN LIMITS**					
20.02	MAXIMAL DREHZAHL MAXIMUM SPEED	0...30000 Upm equal to the value on the fan motor rating plate	1 Upm	1500 Upm/US: 1800 Upm	.....	
20.08	MAXIMUM FREQ	0...500 Hz 50 or 60 Hz according to Technical Schematic Room Ventilation	0,1 Hz	50 Hz / US: 60 Hz	.....	

Link to the documentation from the manufacturer:

http://www.abb.at/product/ap/seitp322/203b7b585aa7d9e7c1256e8c00273e3f.aspx

You find a description for changing parameters on the following pages (extract from the manufacturer documentation).

ACS 550:

Start-Up

Start-up configures the drive. This process sets parameters that define how the drive operates and communicates. Depending on the control and communication requirements, the start-up process may require any or all of the following:

- The Start-up Assistant (requires the Assistant Control Panel) steps you through the default configuration. The Start-up Assistant runs automatically at the first power up, or can be accessed at any time using the main menu.
- Application macros can be selected to define common, alternate system configurations, using the default settings. See "Application Macros" on page 44.
- Additional refinements can be made using the control panel to manually select and set individual parameters. See "Complete Parameter Descriptions" on page 64.

Control Panels

Use a control panel to control the ACS550, to read status data, and to adjust parameters. The ACS 550 works with either of two different control panel types:

- Assistant Control Panel – This panel (described below) includes pre-programmed assistants to automate the most common parameter setups.
- Basic control panel – This panel (described in a later section) provides basic tools for manual entry of parameter values.

Assistant Control Panel

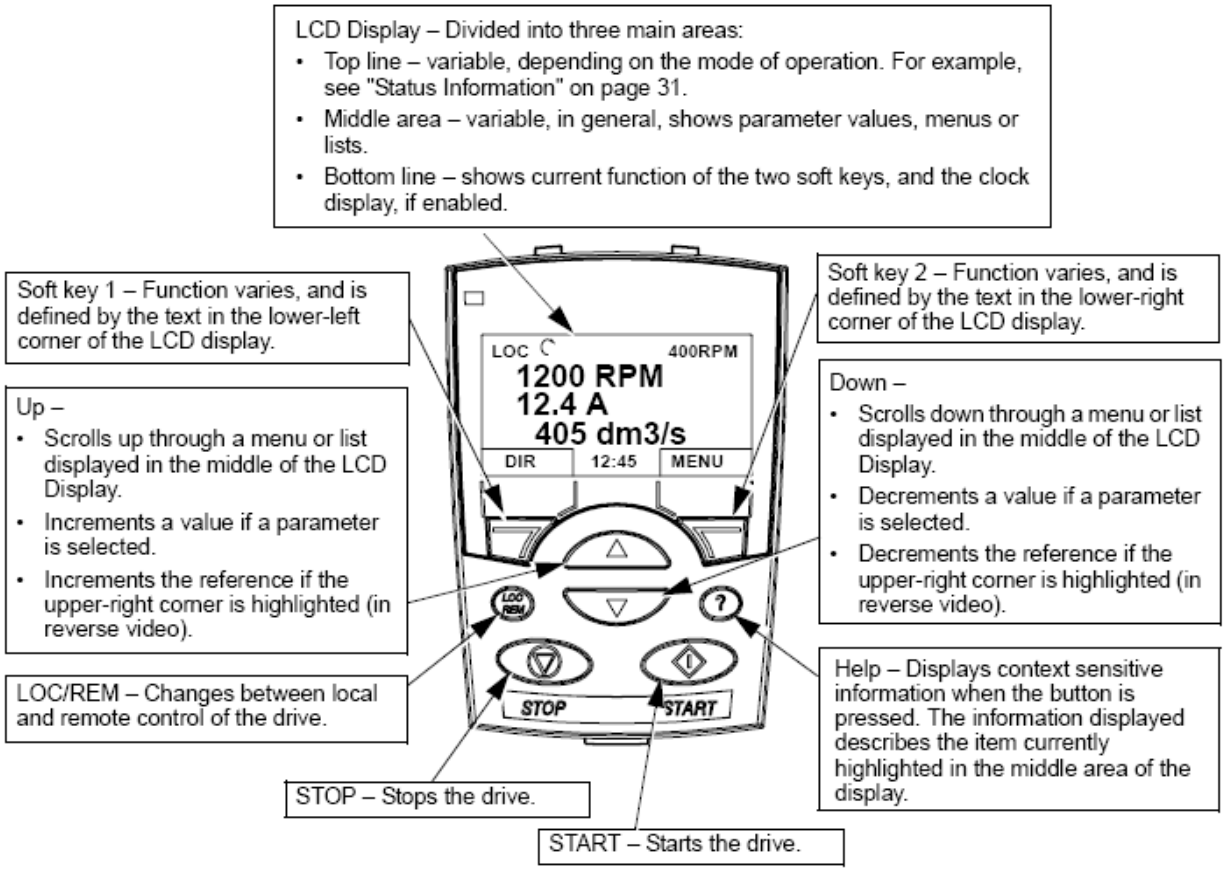
Features

The ACS550 Assistant Control Panel features:

- Alphanumeric control panel with a LCD display
- Language selection for the display
- Drive connection that can be made or detached at any time
- Start-up Assistant to ease drive commissioning
- Copy function – Parameters can be copied to the Control Panel memory for later transfer to other drives, or for backup of a particular system.
- Context sensitive help

Controls/Display Overview

The following table summarizes the button functions and displays on the Assistant Control Panel.



Output Mode

Use the Output mode to read information on the drive's status and to operate the drive. To reach the Output mode, press EXIT until the LCD display shows status information as described below.

Status Information

Top. The top line of the LCD display shows the basic status information of the drive.

- LOC – indicates that the drive control is local, that is, from the control panel.
- REM – indicates that the drive control is remote, such as the basic I/O (X1) or fieldbus.
- ↻ – indicates the drive and motor rotation status as follows:

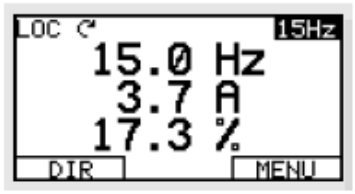
Control Panel Display	Significance
Rotating arrow (clockwise or counter clockwise)	• Drive is running and at setpoint • Shaft direction is forward ↻ or reverse ↺

Control Panel Display	Significance
Rotating arrow blinking	Drive is running but not at setpoint.
Stationary arrow	Drive is stopped.

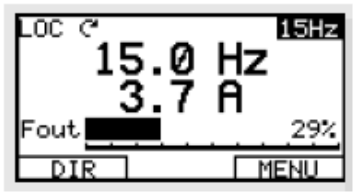
- Upper right – shows the active reference.

Middle. Using parameter Group 34, the middle of the LCD display can be configured to display:

- Up to three parameter values



  – By default, the displays shows three parameters. The particular parameters depend on the value of parameter 9904 MOTOR CTRL MODE. For example, if 9904 = 1, the display shows parameters 0102 (SPEED), 0104 (CURRENT), 0105 (TORQUE).
  – Use parameters 3401, 3408, and 3415 to select the parameters (from Group 01) to display. Entering "parameter" 0100 results in no parameter displayed. For example, if 3401 = 0100 and 3415 = 0100, then only the parameter specified by 3408 appears in the Control Panel display.
  – You can also scale each parameter in the display. For example, use parameters 3402…3405 to scale the parameter specified by 3401. For example, to convert motor speed to a display of conveyor speed.
- A bar graph rather than any of the parameter values.



  – Enter a negative value in the units parameter (3405, 3412, or 3418) to change the parameter display to a bar graph.

Bottom. The bottom of the LCD display shows:

- Lower corners – show the functions currently assigned to the two soft keys.
- Lower middle – displays the current time (if configured to show the time).

Operating the Drive

LOC/REM – The very first time the drive is powered up, it is in the remote control (REM) mode, and is controlled from the Control Terminal Block X1.

To switch to local control (LOC) and control the drive using the control panel, press and hold the LOC/REM button until first, LOCAL CONTROL, or later, LOCAL, KEEP RUN, is displayed:

- Release the button while LOCAL CONTROL is displayed to set the panel reference to the current external reference. The drive stops.
- Release the button when LOCAL, KEEP RUN is displayed, to copy the current run/stop status and the reference from the user I/O.

To switch back to remote control (REM) press and hold the LOC/REM button until REMOTE CONTROL is displayed.

Start/Stop – To start and stop the drive press the START and STOP buttons.

Shaft direction – To change the shaft direction press DIR (parameter 1003 must be set to 3 (REQUEST)).

Reference – To modify the reference (only possible if the display in the upper right corner is in reverse video) press the UP or DOWN buttons (the reference changes immediately).

The reference can be modified when in local control (LOC), and can be parameterized (using Group 11: Reference Select) to also allow modification when remote control (REM).

Other Modes

Besides the Output mode, the Assistant Control Panel has:

- Other operating modes that are available through the main menu.
- A fault mode that is triggered by faults. The fault mode includes a diagnostic assistant mode.

Access to Main Menu and the Other Modes

To reach the main menu:

1. Press EXIT, as necessary, to step back through the menus or lists associated with a particular mode. Continue until you are back to the Output mode.
2. Press MENU from the Output mode.

   At this point, the middle of the display is a listing of the other modes, and the top-right text says "Main menu"
3. Press UP/DOWN to scroll to the desired mode.
4. Press ENTER to enter the mode that is highlighted (reverse video).

The following sections describe each of the other modes.

Parameters Mode

Use the Parameters mode to view and edit parameter values:

1. Select PARAMETERS in the Main Menu.
2. Press UP/DOWN to highlight the appropriate parameter group, then press SEL.

3. Press UP/DOWN to highlight the appropriate parameter in a group.

NOTE! The current parameter value appears below the highlighted parameter.

4. Press EDIT.
5. Press UP/DOWN to step to the desired parameter value.

Note! To view the parameter default value: In the set mode, press UP/DOWN simultaneously.

- Press SAVE to store the modified value or press CANCEL to leave the set mode. Any modifications not saved are cancelled.
- Press EXIT to return to the listing of parameter groups, and again to return to the main menu.

ACS 350:

Basic Control Panel

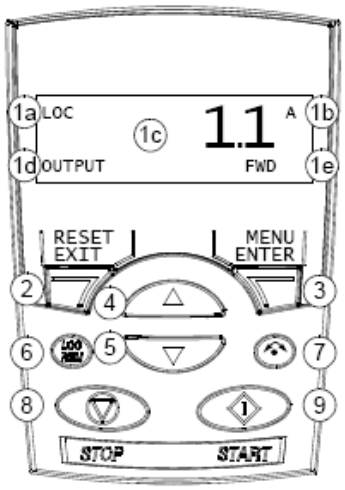
Features

The Basic Control Panel features:

- numeric control panel with an LCD display
- copy function – parameters can be copied to the control panel memory for later transfer to other drives or for backup of a particular system.

Overview

The following table summarizes the key functions and displays on the Basic Control Panel.



No.	Use
1	LCD display – Divided into five areas: a. Upper left – Control location: LOC: drive control is local, that is, from the control panel REM: drive control is remote, such as the drive I/O or fieldbus. b. Upper right – Unit of the displayed value. c. Center – Variable; in general, shows parameter and signal values, menus or lists. Shows also fault and alarm codes. d. Lower left and center – Panel operation state: OUTPUT: Output mode PAR: Parameter mode MENU: Main menu. FAULT: Fault mode. e. Lower right – Indicators: FWD (forward) / REV (reverse): direction of the motor rotation Flashing slowly: stopped Flashing quickly: running, not at setpoint Steady: running, at setpoint SET: Displayed value can be modified (in the Parameter and Reference modes).
2	RESET/EXIT – Exits to the next higher menu level without saving changed values. Resets faults in the Output and Fault modes.
3	MENU/ENTER – Enters deeper into menu level. In the Parameter mode, saves the displayed value as the new setting.
4	Up – • Scrolls up through a menu or list. • Increases a value if a parameter is selected. • Increases the reference value in the Reference mode. Holding the key down changes the value faster.
5	Down – • Scrolls down through a menu or list. • Decreases a value if a parameter is selected. • Decreases the reference value in the Reference mode. Holding the key down changes the value faster.
6	LOC/REM – Changes between local and remote control of the drive.
7	DIR – Changes the direction of the motor rotation.
8	STOP – Stops the drive in local control.
9	START – Starts the drive in local control.

Operation

You operate the control panel with the help of menus and keys. You select an option, e.g. operation mode or parameter, by scrolling the  and  arrow keys until the option is visible in the display and then pressing the  key.

With the  key, you return to the previous operation level without saving the made changes.

The Basic Control Panel has five panel modes: Output, Reference, Parameter, Copy and Fault. The operation in the first four modes is described in this chapter. When a fault or alarm occurs, the panel goes automatically to the Fault mode showing the fault or alarm code. You can reset the fault or alarm in the Output or Fault mode (see chapter *Fault tracing*).

When the power is switched on, the panel is in the Output mode, where you can start, stop, change the direction, switch between local and remote control and monitor up to three actual values (one at a time). To do other tasks, go first to the Main menu and select the appropriate mode.

Parameter mode

In the Parameter mode, you can:

- view and change parameter values
- select and modify the signals shown in the Output mode
- start, stop, change the direction and switch between local and remote control.

How to select a parameter and change its value

Step	Action	Display
1.	Go to the Main menu by pressing ◁ if you are in the Output mode, otherwise by pressing ▽ repeatedly until you see MENU at the bottom.	LOC rEF MENU FWD
2.	If the panel is not in the Parameter mode ("PAr" not visible), press key ▲ or ▼ until you see "PAr" and then press ◁. The display shows the number of one of the parameter groups.	LOC PAr MENU FWD LOC -01- PAR FWD
3.	Use keys ▲ and ▼ to find the desired parameter group.	LOC -11- PAR FWD
4.	Press ◁. The display shows one of the parameters in the selected group.	LOC 1101 PAR FWD
5.	Use keys ▲ and ▼ to find the desired parameter.	LOC 1103 PAR FWD
6.	Press and hold ◁ for about two seconds until the display shows the value of the parameter with **SET** underneath indicating that changing of the value is now possible. **Note:** When **SET** is visible, pressing keys ▲ and ▼ simultaneously changes the displayed value to the default value of the parameter.	LOC 1 PAR SET FWD
7.	Use keys ▲ and ▼ to select the parameter value. When you have changed the parameter value, **SET** starts flashing. • To save the displayed parameter value, press ◁. • To cancel the new value and keep the original, press ▽.	LOC 2 PAR SET FWD LOC 1103 PAR FWD