

Measuring Mode

After the operating voltage has been connected, the analyzer automatically goes to "Measuring" mode. To call the measuring mode from another operating mode (e.g. Diagnostics, Service):

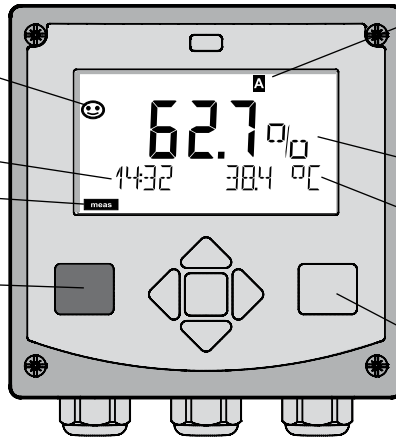
Hold **meas** key depressed (> 2 s).

Sensoface indicator
(sensor status)

Time

Mode indicator
(measuring)

Hold **meas** key
depressed
for calling the
measuring mode
(pressing it once
more switches the
display



Active
parameter set
(configuration)

Process
variable

Temperature

enter key

In measuring mode the display indicates:

- Measured value and time (24/12 h AM/PM) as well as temperature in °C or °F (formats selected during configuration)

By pressing the **meas** key in measuring mode you can view the following displays (for approx. 60 sec):

- Measured value and selection of parameter set A/B (if configured)
- Measured value and tag (point of measurement designation – entered during configuration)
- Time and date

Pressing the **enter** key shows the output currents. They are displayed as long as **enter** is held depressed, then the measured-value display will return after 3 sec.



The analyzer must be configured for the respective measurement task!

Quickstart

Keypad

Key	Function
meas	<ul style="list-style-type: none">• Return to last menu level• Directly to measuring mode (press > 2 s)
info	<ul style="list-style-type: none">• Retrieve information• Show error messages
enter	<ul style="list-style-type: none">• Configuration: Confirm entries, next configuration step• Calibration: Continue program flow• Measuring mode: Display output current
Arrow keys up / down	<ul style="list-style-type: none">• Measuring mode: Call menu• Menu: Increase/decrease a numeral• Menu: Selection
Arrow keys left / right	<ul style="list-style-type: none">• Measuring mode: Call menu• Menu: Previous/next menu group• Number entry: Move between digits

Sensocheck, Sensoface Sensor Monitoring

Sensocheck continuously monitors the sensor and its wiring. Sensocheck can be switched on/off (default: off).

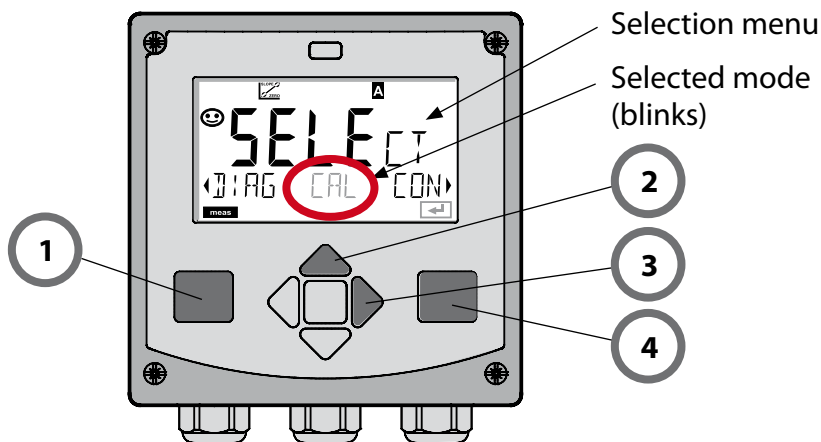


Sensoface provides information on the sensor condition. The three Sensoface indicators provide the user with information on wear and required maintenance of the sensor.

Selecting the Mode / Entering Values

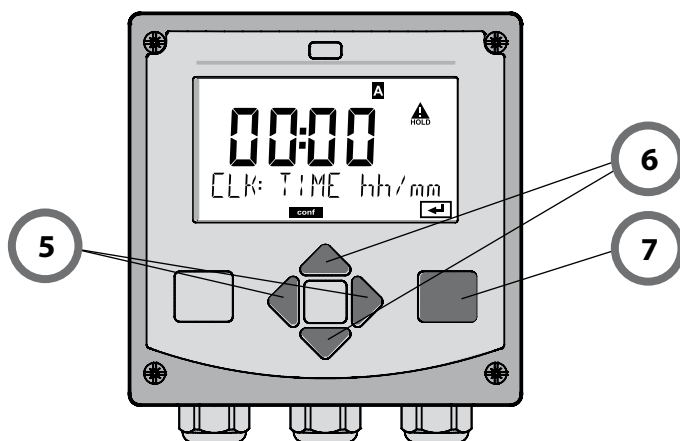
To select the operating mode:

- 1) Hold **meas** key depressed (> 2 s) (measuring mode).
- 2) Press any arrow key: the selection menu appears
- 3) Select operating mode using left / right arrow key
- 4) Press **enter** to confirm the selected mode

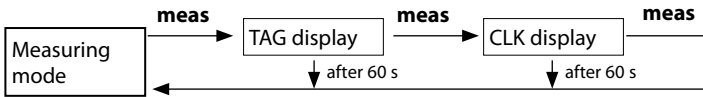


To enter a value:

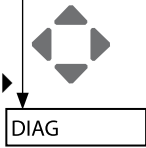
- 5) Select numeral: left / right arrow key
- 6) Change numeral: up / down arrow key
- 7) Confirm entry with **enter**



Operating Modes / Functions



Pressing any arrow key opens the selection menu.
 Select the menu group using the left/right arrow keys.
 Press **enter** to open a menu. Press **meas** to return.



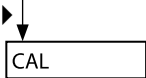
DIAG

CALDATA	Display of calibration data
SENSOR	Display of sensor data
SELFTEST	Self test: RAM, ROM, EEPROM, module
LOGBOOK	Logbook: 100 events with date and time
MONITOR	Display of direct, uncorrected sensor signals
VERSION	Display of software version, model designation, serial number



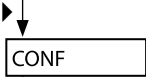
HOLD

Manual activation of HOLD mode, e.g. for sensor replacement.
 The signal outputs behave as configured (e.g. last measured value, 21 mA)



CAL

WTR / AIR	Calibration in water / air (as configured)
ZERO	Zero adjustment
P_CAL	Product calibration
CAL_RTD	Adjustment of temperature probe



CONF

PARSET A	Configuring parameter set A: See next page
PARSET B	Configuring parameter set B



SERVICE

(Access via code, factory setting: 5555)

MONITOR	Display of measured values for validation (simulators)
OUT1	Current source, output 1
OUT2	Current source, output 2
RELAIS	Relay test (A411 only)
CONTROL	Controller: man. specification of controller output (A411 only)
IRDA	Activating the IrDA interface
CODES	Specifying access codes for operating modes
DEFAULT	Reset to factory setting
OPTION	Enabling an option via TAN

Overview of Configuration

The configuration steps are assigned to different menu groups. With the left/right arrow keys you can jump between the individual menu groups.

Each menu group contains menu items for setting the parameters. Pressing **enter** opens a menu item. The values are edited using the arrow keys. Pressing **enter** confirms/stores the settings.

Return to measurement: Hold **meas** key depressed (> 2 s).

Select menu group	Menu group	Code	Display	Select menu item
	Sensor selection	SNS:		 enter enter enter enter
		Menu item 1		
		:		
		Menu item ...		
	Current output 1	OT1:		 enter enter enter enter enter enter enter enter
▶	Current output 2	OT2:		
▶	Compensation	COR:		
▶	Alarm mode	ALA:		
▶	Setting the clock	CLK:		
▶	Point of measurement	TAG:		

Calibration

Calibration adapts the device to the individual sensor characteristics. It is always recommended to calibrate in air.

Compared to water, air is a calibration medium which is easy to handle, stable, and thus safe. In the most cases, however, the sensor must be dismantled for a calibration in air.

When dealing with biotechnological processes which require sterile conditions, the sensor cannot be removed for calibration. Here, calibration must be performed with aeration directly in the process medium (e.g. after sterilization).

In the field of biotechnology, for example, often saturation is measured and calibration is performed in the medium for reasons of sterility.

For other applications where concentration is measured (water control etc.), calibration in air has proved to be useful.

NOTICE







- All calibration procedures must be performed by trained personnel. Incorrectly set parameters may go unnoticed, but change the measuring properties.
- If a 2-point calibration is prescribed for trace oxygen measurement, the zero calibration should be performed prior to slope calibration. See main instruction manual.

Common Combination: Process Variable / Calibration Mode

Measurement	Calibration	Application
Saturation	Water	Biotechnology; sensor cannot be removed for calibration (sterility)
Concentration	Air	Waters, open basins

In the following, the calibration procedure for a slope calibration in air is described. Of course, other combinations of process variable and calibration mode are possible.

Slope Calibration (Medium: Air)

Display	Action	Remark
	<p>Select calibration. Place sensor in air, start with enter Device goes to HOLD mode.</p>	<p>“Medium water” or “Medium air” is selected in the con- figuration.</p>
	<p>Enter relative humidity using arrow keys Proceed with enter</p>	<p>Default for relative humidity in air: rH = 50%</p>
	<p>Enter cal pressure using arrow keys Proceed with enter</p>	<p>Default: 1.000 bar Unit: bar/kpa/PSI</p>
	<p>Drift check: Display of: sensor current (nA), response time (s), temperature (°C/°F) Proceed with enter</p>	<p>The drift check can take some minutes.</p>
	<p>Display of calibration data (slope and zero). Proceed with enter</p>	
	<p>Display of selected process variable (here: %vol). Now the device is in HOLD mode: Reinstall the sensor and check whether the message is OK. MEAS ends calibration, REPEAT permits repetition.</p>	<p>After end of calibra- tion, the outputs re- main in HOLD mode for a short time.</p>

Error Messages

Error	Info text (is displayed in case of fault when the Info key is pressed)	Problem Possible causes
ERR 99	DEVICE FAILURE	Error in factory settings EEPROM or RAM defective This error message only occurs in the case of a total defect. The device must be repaired and recalibrated at the factory.
ERR 98	CONFIGURATION ERROR	Error in configuration or calibration data Memory error in device program Configuration or calibration data defective; completely reconfigure and recalibrate the device.
ERR 97	NO MODULE INSTALLED	No module Please have the module replaced in the factory.
ERR 96	WRONG MODULE	Wrong module Please have the module replaced in the factory.
ERR 95	SYSTEM ERROR	System error Restart required. If error still persists, send in the device for repair.
ERR 01	NO SENSOR	O₂ sensor * Sensor defective Sensor not connected Break in sensor cable
ERR 02	WRONG SENSOR	Wrong sensor *
ERR 03	CANCELED SENSOR	Sensor devaluated *

Error	Info text (is displayed in case of fault when the Info key is pressed)	Problem Possible causes
ERR 04	SENSOR FAILURE	Failure in sensor *
ERR 05	CAL DATA	Error in cal data *
ERR 11	OXY RANGE	Display range violation SAT saturation CONC concentraton or GAS volume concentration
ERR 12	SENSOR CURRENT RANGE	Measuring range of sensor exceeded
ERR 13	TEMPERATURE RANGE	Temperature range violation
ERR 15	SENSOCHECK	Sensocheck glass
ERR 60	OUTPUT LOAD	Load error
ERR 61	OUTPUT 1 TOO LOW	Output current 1 < 0 (3.8) mA
ERR 62	OUTPUT 1 TOO HIGH	Output current 1 > 20.5 mA
ERR 63	OUTPUT 2 TOO LOW	Output current 2 < 0 (3.8) mA
ERR 64	OUTPUT 2 TOO HIGH	Output current 2 > 20.5 mA
ERR 69	TEMP. OUTSIDE TABLE	Temperature value outside table
ERR 100 ...255	VOID PARAMETER	Invalid parameter

*) ISM® sensors

