DOC023.53.90351

PROGNOSYS

11/2013, Edition 6

User Manual

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General information

In no event will the manufacturer be liable for direct, indirect, special, incidental or consequential damages resulting from any defect or omission in this manual. The manufacturer reserves the right to make changes in this manual and the products it describes at any time, without notice or obligation. Revised editions are found on the manufacturer's website.

Safety information

NOTICE

The manufacturer is not responsible for any damages due to misapplication or misuse of this product including, without limitation, direct, incidental and consequential damages, and disclaims such damages to the full extent permitted under applicable law. The user is solely responsible to identify critical application risks and install appropriate mechanisms to protect processes during a possible equipment malfunction.

Please read this entire manual before unpacking, setting up or operating this equipment. Pay attention to all danger and caution statements. Failure to do so could result in serious injury to the operator or damage to the equipment.

Make sure that the protection provided by this equipment is not impaired. Do not use or install this equipment in any manner other than that specified in this manual.

Use of hazard information

⚠ DANGER

Indicates a potentially or imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

Indicates a potentially or imminently hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION

Indicates a potentially hazardous situation that may result in minor or moderate injury.

NOTICE

Indicates a situation which, if not avoided, may cause damage to the instrument. Information that requires special emphasis.

Precautionary labels

Read all labels and tags attached to the instrument. Personal injury or damage to the instrument could occur if not observed. A symbol on the instrument is referenced in the manual with a precautionary statement.

	This symbol, if noted on the instrument, references the instruction manual for operation and/or safety information.
	This symbol indicates that a risk of electrical shock and/or electrocution exists.
	Electrical equipment marked with this symbol may not be disposed of in European domestic or public disposal systems. Return old or end-of-life equipment to the manufacturer for disposal at no charge to the user.

Product overview

PROGNOSYS (Prognosis System) is a software package used to monitor and show the reliability of measurement values and to identify pending maintenance tasks. This software is available for sc sensors. The sc1000 controller operates and configures the software.

The controller display will show horizontal bars as a measurement value indicator and as a service indicator for the remaining time until the next maintenance task. The green, yellow and red indicators show and identify the status of each sensor. Each sensor has an individual screen.

The service indicator is a prediction about future maintenance and service tasks, which are based on the current sensor status. The service messages supply information on maintenance tasks that the user must complete (e.g., to clean the sensor or replace the reagents). In addition, service tasks are shown that the service technician must complete. All service messages have a countdown period with sufficient time to contact a service technician or to order a replacement part.

Product components

Make sure that all components have been received. If any items are missing or damaged, contact the manufacturer or a sales representative immediately.

PROGNOSYS can only be used with an sc1000 controller that has an RTC communication card or a PROGNOSYS card installed. The PROGNOSYS files for the different sc sensors are kept on the sc1000 controller.

To use PROGNOSYS without an RTC module, install a PROGNOSYS communication card on an sc1000 controller. Refer to Replacement parts on page 16.

Installation

PROGNOSYS communication card

If a PROGNOSYS communication card is installed, the controller display shows RTC MODULES/PROGNOSYS in the main menu.

Install the RTC/PROGNOSYS communication card

Install an RTC or a PROGNOSYS communication card on an sc1000 controller with the software version 3.20 or higher.

The controller operates a maximum of three communication cards at the same time. Each PROGNOSYS communication card manages a maximum of eight sensors.

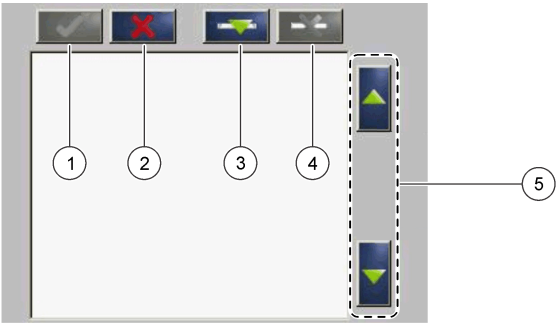
Refer to the applicable documentation for the RTC or PROGNOSYS communication card installation.

User interface and navigation

Keypad description

Refer to Figure 1 for the keypad description and navigation information.

Figure 1 Keypad description



1 Enter: Saves the setting and exits the current screen to the CONFIGURE menu	**4** Delete: Removes a sensor from the selection
2 Cancel: Exits the current screen to the CONFIGURE menu without saving the setting	**5** UP and DOWN arrows: Moves the sensors up or down the list
3 Add: Adds a new sensor to the selection	

Startup

Add a sensor

Note: *PROGNOSYS is not available for all sensors. Only newer sensor models can use the PROGNOSYS function.*

Note: *Make sure that an RTC or a PROGNOSYS communication card is installed in the sc1000 sensor module.*

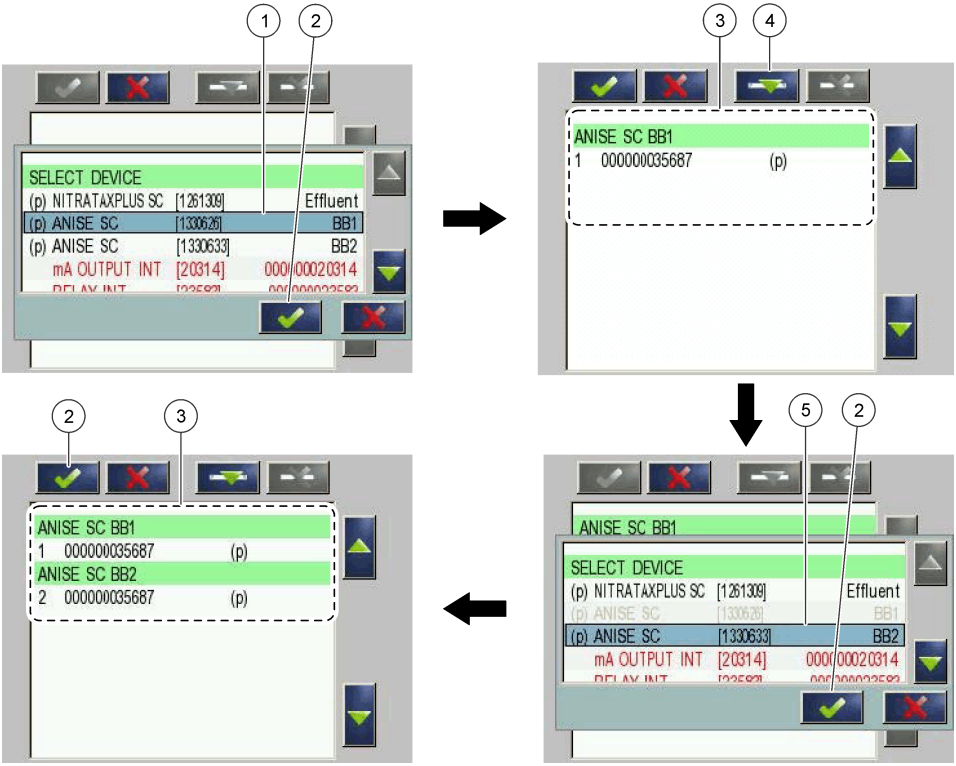
When an RTC or PROGNOSYS communication card is installed, PROGNOSYS files are available for different sc sensors. Do the steps that follow to add a sensor. Refer to Figure 2.

1. Connect the controller. Refer to the controller documentation.
2. Select an option.

Option	Description
For RTC/PROGNOSYS card	Select MAIN MENU>RTC MODULES/PROGNOSYS>RTC MODULES>RTC>CONFIGURE>SELECT SENSOR
For PROGNOSYS card	Select MAIN MENU>RTC MODULES/PROGNOSYS>PROGNOSYS>CONFIGURATION>PROGNOSYS>SELECT SENSOR

3. Push **Add**. A list with all network connections opens.
4. Select the applicable sensor for the RTC or PROGNOSYS module and push **Enter**. The sensor is shown in the sensor list.
   Note: *Sensor names with black font are available for an RTC module. Sensor names with red font are not available for an RTC module. A sensor name identified with a "(p)" is available for PROGNOSYS.*
5. Push **Add** to add more sensors from the list.
   Sensors that are selected before are shown in gray. Refer to Figure 3 on page 7 or Figure 4 on page 7 to put in order or delete a sensor.
6. Push **Enter** to accept the list.

Figure 2 Add sensors

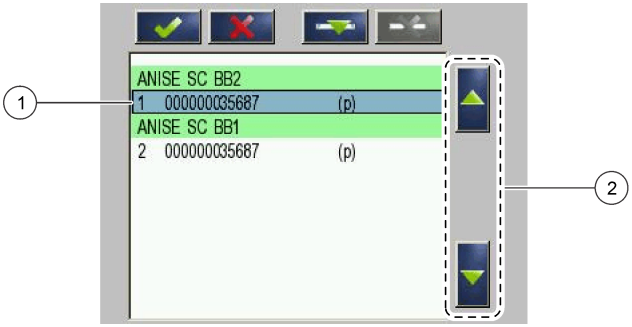


1 Select sensor	**4** Add
2 Accept	**5** Select additional sensor
3 Sensor list	

Sort the sensors (RTC modules only)

The sensor sequence is programmed in the RTC module for the measurement values. To sort the sensors in the order specified for the RTC module, move the selected sensor with the UP and DOWN arrows. Refer to Figure 3.

Figure 3 Sort the sensors

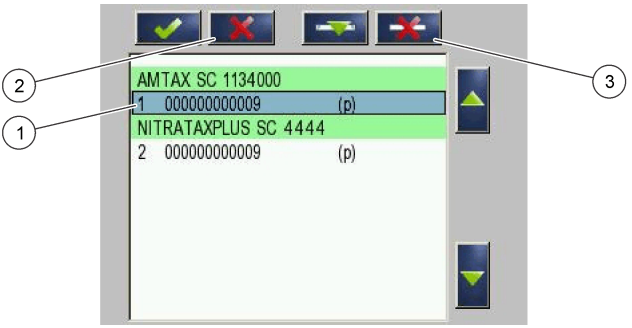


1 Select sensor	**2** UP and DOWN arrows

Delete a sensor from the list

To delete a selected sensor from the list, push **Delete**. Refer to Figure 4.

Figure 4 Delete a sensor



1 Select sensor	**3** Delete the sensor
2 Go back without changes	

Operation

PROGNOSYS indicator bars

If PROGNOSYS is installed, two additional horizontal bars show in the top right-hand corner of the measurement screen. The top bar is the measurement value indicator. The bottom bar is the service indicator. If no bars show up, refer to Troubleshooting on page 16. The position of the cursor and the value in the indicator identifies the sensor status. Refer to Table 1.

Table 1 Color definitions

Color	Definition
Green	The sensor is in operation with no warnings, errors or reminders.
Yellow	The sensor is in operation with active warnings or reminders. The measurement indicator (top bar) shows a possible measurement value deviation, but the value is still within the permitted tolerance. The service indicator (bottom bar) shows an upcoming maintenance task which includes a countdown period. Set the countdown period between 7 and 14 days.
Red	The measurement value is invalid or immediately complete a service task.
Blank (background color)	No data is available or the RTC/PROGNOSYS communication card was removed.

Display description

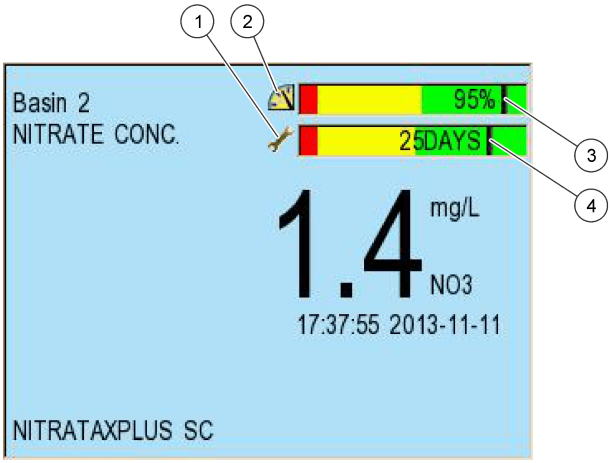
The measurement value indicator is not a linear degrading indicator because of the sensor special model based calculation.

Measurement zone	Range
Green zone	100 to 75%
Yellow zone	<75 to 50%
Red zone	<50 to 0%

The exact status shows with an additional vertical cursor. A maximum of four measurement values show if multiple sensors are installed on the sc1000. The indicators are shown for each installed sensor in the top right-hand corner.

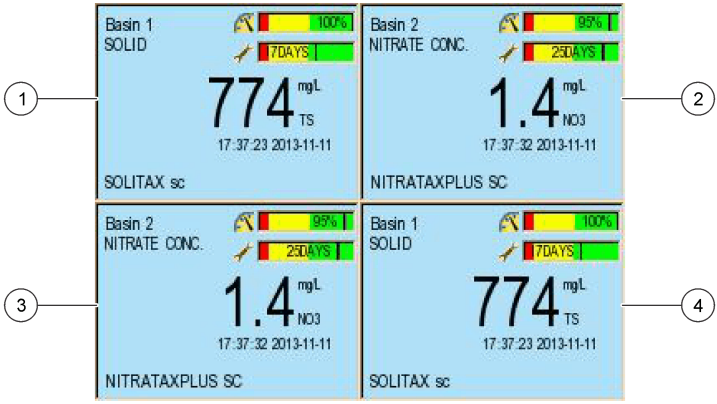
If only a frame around the background color shows and no traffic light colors, no data is available for the sensor. If no bars are shown, refer to Troubleshooting on page 16. Refer to Figure 5 and Figure 6 for examples shown on the display.

Figure 5 Display overview for one sensor



1 Symbol for the service indicator	**3** Cursor with exact status of the measurement value indicator
2 Symbol for the measurement value indicator	**4** Cursor with exact status of the service indicator

Figure 6 Display overview for four sensors



1 Sensor 1	**3** Sensor 3
2 Sensor 2	**4** Sensor 4

Measurement value indicator

If the sensor condition changes, the measurement value indicator changes. A deterioration of the measurement value indicator level in the top bar can change the color in the bottom service bar. Pending maintenance tasks do not have an immediate effect on the measurement value indicator (e.g., to replace the reagents).

A change in color from green to yellow shows that the reliability of the measurement value decreased. There can be a deviation in the measurement value, but the value is still within the permissible tolerance.

The top bar shows the measurement value indicator in [%].

If the vertical cursor is in the red area (<50%), the measurement value indicator is not in the permitted range. These measurement values must not be used for control purposes in processes. Refer to Service and measurement value indicator messages on page 11 for troubleshooting.

When the errors are successfully solved, the color automatically changes from red to green.

Service indicator

The service indicator shows the maintenance status of the sensor. The bottom bar shows the number of days that remain until a maintenance task must be completed. The date and time for the next maintenance task (e.g., cleaning or calibration is calculated). Service tasks with no countdown show immediately and change the color from green to red (e.g., an interruption of communication over a prolonged period or moisture in the sensor).

The number of days until the next maintenance tasks is shown in the applicable message list. Refer to Configure the sensor on page 11.

See the message lists

The messages in the measurement value indicator list show the type of incident with a percentage value. The percentage shows the influence degree on the probability that the measurement value is correct. The measurement value indicator is the product of the first incident multiplied by the average of all possible incidents. Notice that incidents with 100% are not shown in the list but are part of the calculation.

Refer to Service and measurement value indicator messages on page 11 for a general overview of the instrument-specific messages.

Example: A probe has 10 possible indicators. Three parameters show indicators of 75%, 90% and 90%. The hidden indicators have a value of 100%. The worst incident is changed to a decimal number: 0.75. The average of the other incidents is 0.98. The overall indicator is 0.75 × 0.98 = 0.73. The overall indicator for the example is 73%. Refer to Table 2.

The message list specifies the type of the maintenance task with the number of days left until the maintenance must be completed. The example shows to replace the cleaning solution today. The reagents should be used up in six days. Refer to Table 3.

1. Push PROGNOSYS to access the applicable menu.
2. Push the top bar.
   The measurement value indicator message list shows.
3. Push the bottom bar.
   The service indicator message list shows.

Table 2 Example of a measurement value indicator list

Measurement indicator	Measurement value indicator value in %
Insufficient light	75
Analysis: too cold	90
Analysis: moisture	90

Table 3 Example of a service indicator list

Service indicator	Time in days
clean Solu days	1 day
Reagent days	6 days

Configure the general settings

Configure service messages to send emails to the manufacturer telemetry service and to a maximum of four freely-configured email address(es). This email gives information about important changes in the measurement indicator and about pending maintenance tasks.
In addition, the length of the "YELLOW PHASE" of the service indicator can be configured. The yellow phase setting applies to all sensors connected to the controller that are monitored by PROGNOSYS. The setting specifies the duration of the yellow maintenance countdown phase in days. For maintenance tasks that are not often necessary, the user can extend the yellow phase to operate on a self-sufficient basis.

1. Push MAIN MENU>SERVICE>PROGNOSYS.
2. Select an option.

Option	Description
SERVICE MESSAGE	Sets the number of days to send an email before a color change in the service indicator will occur. Range: –1 to –14 days (default = –7 days)
YELLOW PHASE	Sets the number of days that remain of the yellow phase to complete the next maintenance task (when the color changes from yellow to red). Range: 1 to 14 days (default = 14 days)

Configure the sensor

Use the PROGNOSYS menu to monitor specific settings or to change the blink mode.

1. Push MAIN MENU>RTC MODULES/PROGNOSYS>PROGNOSYS.
2. Select the applicable sensor.
3. Select an option.

Option	Description
MEAS. INDICATOR	Shows the measurement indicator bar in %.
DETAILS	Shows the message list for the measurement indicator. Example: R<M—shows if the reference signal is smaller than the measurement signal in %. MEAS EXT—shows the absorbance value in %.
SERVICE INDICATOR	Shows the number of days that remain until a maintenance task must be completed.
DETAILS	Shows the message list for the service indicator. Example: replace the wiper profile: 1 day or replace the seals: 42 days
DEVICE	Shows the sensor name.
LOCATION	Shows the location name where the sensor is used.
PROGNOSYS VERS.	Shows the PROGNOSYS software version.
BLINK MODE MEAS<	Enters the measurement indicator value in %. The measurement indicator bar flashes when the value decreases below the given value. Make sure to enter a higher value when the measurement is related to a control system or a sensitive parameter. Range: 0 to 100% (default = 0%)
BLINK MODE SERV<	Enters individual number of days for a maintenance task. The service indicator bar flashes when the value decreases below the given value. Range: 0 to 200 days (default = 0 days)

Service and measurement value indicator messages

⚠ WARNING

For safe use of the instrument, obey the precautions and the instructions in the sensor documentation.

This list gives a general overview for the service and measurement value indicator messages. Refer to the sensor documentation for a more detailed list of maintenance messages.

AMTAX sc and PHOSPHAX sc

Message	Possible cause	Solution
Instrument error	The instrument caused an error message.	Examine the error message on the controller. Refer to the sensor documentation for solutions. Make sure that the error is shown in the service menu and push **START**.
Instrument warning	The instrument caused a warning message.	
Warm-up phase	The inside of the instrument is too cold (e.g., the enclosure door was open at low external temperatures).	Wait until the warm-up phase is completed. If the start-up temperature was higher, the warm-up phase can vary from a few minutes to an hour.
Cooling down	The instrument is overheated and is cooling-down. If the instrument version has a filter probe, the compressor is deactivated in this phase.	• Wait until the cooling-down phase is completed. • Make sure that no blockage of the vent is caused. • Clean or change the air filter. • Complete a function test on the fan. • Specify the correct operating temperature.

Message	Possible cause	Solution
Pump piston replacement	If 0 day is shown, the time for the pump piston is expired.	• Contact technical support immediately to replace the pump piston, so that the instrument operates correctly. • Set the counter when the pump piston is replaced.
Air filters clean	The maintenance for the air filter is necessary.	• Examine the air filter condition. • Rinse the air filter with water or replace it. • Examine and clean the air inlet and outlet on the back of the instrument. • Use tweezers to remove contamination from the air filter support. • Complete the air filter maintenance task correctly so that the instrument does not overheat. • Set the counter when the maintenance task is completed.
Reagent days	Shows the days that remain to replace the reagent.	• Replace the reagents on time. • Set the counter when the maintenance task is completed.
clean Solu days	Shows the days that remain to replace the cleaning solution.	• Replace the cleaning solution on time. • Set the counter when the maintenance task is completed.
Standards days (AMTAX sc only)	Shows the days that remain to replace the calibration standard.	• Replace the calibration solution on time. • Set the counter when the maintenance task is completed.
Electrolyte days (AMTAX sc only)	Shows the days that remain to change the electrolyte in the electrode and the membrane cap.	• Change the electrolyte in the electrode and the membrane cap on time. • Set the counter when the maintenance task is completed.
Compressor replacement	The time for the compressor is expired. For instruments with a filter probe only.	• Replace the compressor. • Set the counter when the maintenance task is completed.
Clean filtration modules	Shows the days that remain to clean the filtration modules. For instruments with a filter probe only.	• Clean the filtration modules. Replace the filtration module if the cleaning is not sufficient. • Set the counter when the maintenance task is completed.
Humidity probe %	Humidity is in the enclosure. Shows the time that remains to replace the filter probe.	Contact technical support immediately for the filter probe maintenance and desiccant replacement, so that the instrument operates correctly.
Service filter probe required	Shows the days that remain to replace the pump membrane in the filter probe.	• Contact technical support immediately for the filter probe maintenance and pump membrane replacement, so that the instrument operates correctly. • Set the counter when the pump membrane is replaced.

NITRATAX plus sc

Message	Possible cause	Solution
Sensor, Application check	The signal level is too low. The sensor possibly has a dirty window. The selected path length is too long (if applicable). The solid concentration or the turbidity in the measurement medium can be too high.	• Clean sensor window fully. • Examine the wiper. • Examine the measuring medium with a diluted sample. • Contact technical support.
R<M		
meas ext	The measurement absorbance is too high. The measurement range is too high because the signal level is too low. The sensor possibly has a dirty window. Interferences can be caused by other substances.	• Clean sensor window fully. • Examine the wiper. • Examine the solid content of sample. • Use a cuvette test to examine the nitrate concentration. If the EM/ER values are >2.74, use a smaller path length. • Contact technical support.
ref ext	The path length is too long. The wiper does not operate correctly. The absorbance is too high because of nitrate concentration or other UV-absorbing materials.	
Wiper blocked	The wiper is mechanically blocked. The measurement window is not clean anymore. No sample is pulled in the instrument. The wiper is possibly in front of the window.	• Examine and clean the measurement window fully. • Complete a wiper test and do a stop position test. • Contact technical support.
Wiper position unknown		
Moist	Moisture in the sensor is over limit: the desiccant is expired. There is possibly a problem with the gasket set for the sensor sleeve or the wiper axle.	Contact technical support immediately to replace the gasket, so that the instrument operates correctly.
R too high	The automatic zeroing is not correct.	Contact technical support for a zero point calibration.
Replace shaftseals	The time for the wiper axle gasket cycles is expired.	Contact technical support to replace for a wiper axle gasket.
Replace profile	The time for wiper profile cycles is expired.	• Replace the wiper profile. • Set the counter when the maintenance task is completed.
Motor cycle	The time for motor cycles is expired.	Contact technical support to replace the wiper motor.
Flash lamp replace	The time for flashes is expired.	Contact technical support to replace the flash lamp.
Replace seals	The annual change of the sensor enclosure gasket is necessary.	Contact technical support to replace the sensor enclosure gasket.
Error	Collective error message	Examine the error message on the controller. Refer to the sensor documentation for solutions.
Warning	Collective warning message	

ANISE sc/AISE sc/NISE sc

Message[1]	Possible cause	Solution
Instrument error	The instrument caused an error message.	Examine the error message on the controller. Refer to the sensor documentation for solutions.
Instrument warning	The instrument caused a warning message.	

Message[1]	Possible cause	Solution
RFID-Data not valid	The RFID calibration data for the cartridge could not be read.	Enter the sensor code for the temporary sensor operation manually, then replace the cartridge.
Reference potential uncertain	The data supplied by the reference system for the cartridge is not reliable.	Examine the measurement values and if necessary, replace the cartridge.
Initial matrix correction required	When a new cartridge is installed, a matrix correction is necessary after 24 hours.	Complete a one-point matrix correction for NH_4-N and NO_3-N. Complete a one-point matrix correction for a higher measurement accuracy for small values for NH_4N +K and NO_3N +Cl.
Matrix correction NH4 necessary	A matrix correction for NH_4 is necessary.	Complete a one-point matrix correction (MX1) or value correction (VC1) for NH_4. If the calibration is good in comparison to the laboratory value, use the measurement value as the calibration value when a calibration is started.
Matrix correction NO3 necessary	A matrix correction for NO_3 is necessary.	Complete a one-point matrix correction (MX1) or value correction (VC1) for NO_3. If the calibration is good in comparison to the laboratory value, use the measurement value as the calibration value when calibration is started.
Replace cartridge	The time (one year) for the cartridge is expired.	Examine the measurement values and replace the cartridge as soon as possible.
no contact Ref1	Problem with the contact between sensor and reference system.	• Remove the cartridge. • Examine and clean the contacts. • Examine the spring action of the contacts in the sensor and replace the spring insert if necessary. • Contact technical support to examine and replace the electronics if necessary. • Replace the cartridge if necessary.
no contact Ref2		
no contact NH4		
no contact NO3		
no contact K+		
no contact Cl-		
Humidity cartridge contacts	There is humidity between the sensor and the cartridge.	• Make sure that the cartridge screws are tightened correctly. • Examine the gasket. • Dry the contact area. • Contact technical support to replace the gold spring contacts if necessary. • Replace the gasket. • Replace cartridge and gasket.
Ref electrode aged	The yellow plug is still on the reference system. The time of the reference system is expired (membrane pores are blocked) and can not operate correctly.	• Remove the yellow plug from the reference system. • Carefully try to clean the outlet of the reference system from the cartridge mechanically. Carefully remove any objects with a toothbrush or a similar object. • Carefully apply a drop of hydrochloric acid (5%) only onto the reference system. If it foams, repeat until the foaming stops. If this is not successful, replace the cartridge.

Message[1]	Possible cause	Solution
NH4 electrode damaged	The NH_4 electrode is damaged.	• Replace the cartridge. • Examine if the cartridge was in contact (through vibrations) with the wall or other objects. • Do not hit the cartridge during removal from the basin. • Do not touch the ground with the cartridge.
NO3 electrode damaged	The NO_3 electrode is damaged.	
K+ electrode damaged	The K+ electrode is damaged.	
CL- electrode damaged	The Cl- electrode is damaged.	
NH4 MX2: high Temp. diff. P1 P2	The temperature difference between the two correction points of a matrix correction (MX2) or value correction (VC2) for NH_4 is more than 7.5 °C (45.5 °F).	Select a two-point matrix correction (MX2) or value correction (VC2) for within a temperature difference of 7.5 °C (45.5 °F).
NH4: High temp. diff. to MX	The temperature difference between the correction point of a one-point matrix correction (MX1) or value correction (VC1) is more than 7.5 °C (45.5 °F) for NH_4. The average temperature of the two-point matrix correction (MX2) or value correction (VC2) and the actual temperature of the medium is more than 7.5 °C (45.5 °F) for NH_4.	Make sure to put the sensor fully in the medium. Complete new MX1 or MX2 (VC1 or VC2) near to the temperature of the medium during operation.
NO3 MX2: high Temp. diff. P1 P2	The temperature difference between the two correction points of a matrix correction (MX2) or value correction (VC2), for NO_3 is more than 7.5 °C (45.5 °F).	Select the correction points for MX2 (VC2) within a temperature difference of 7.5 °C (45.5 °F).
NO3: High temp. diff. to MX	The temperature difference between the correction point of a one-point matrix correction (MX1) or value correction (VC1) is more than 7.5 °C (45.5 °F) for NO_3. The average temperature of the correction points of a two-point matrix correction (MX2) or value correction (VC2) and the actual temperature of the medium is more than 7.5 °C (45.5 °F) for NO_3.	Make sure to put the sensor fully in the medium. Complete a new MX1 or MX2 (VC1 or VC2) near to the temperature of the medium during operation.

[1] AISE: All messages except for NO_3 and Cl electrodes. NISE: All messages except for NH_4 and K electrodes.

SOLITAX sc

Message	Possible cause	Solution
Service required	The counter for maintenance is expired.	Contact technical support.
Replace wiper blade	The counter for wiper cycles is expired.	Replace the wiper profile.

Message	Possible cause	Solution
Check wiper function Wiper position unknown	The wiper is mechanically blocked. The measurement window is not clean anymore. No sample is pulled in the instrument. The wiper is possibly in front of the window.	• Examine and clean the measurement window fully. • Complete a wiper test and do a stop position test. • Contact technical support.
Replace wiper motor	The counter for wiper motor is expired.	Contact technical support to replace the wiper motor.
Calibration data faulty	The factory calibration data is lost.	Contact technical support.
Instrument error Instrument warning	The instrument caused an error message. The instrument caused a warning message.	Examine the error message on the controller. Refer to the sensor documentation for solutions.
Humidity probe	Moisture in the sensor is over limit: the desiccant is expired. There can be a problem with the gasket set for the sensor sleeve or the wiper axle.	Contact technical support immediately to replace the gasket, so that the instrument operates correctly.
LED faulty	LED intensity is too low.	Contact technical support.
Replace gasket	The time for the wiper axle gasket cycles is expired.	Contact technical support to replace for a wiper axle gasket.

Troubleshooting

Problem	Possible cause	Solution
The sensor is selected from the RTC communication card, but no bars are shown.	The RTC/PROGNOSYS communication card is not installed correctly.	Make sure that the RTC/PROGNOSYS communication card is installed correctly. Select MAIN MENU>RTC MODULES/PROGNOSYS>PROGNOSYS>ALLOCATION MAP. Refer to the communication card installation documentation for more information.
The bars do not show RED, YELLOW or GREEN. Only the background color is shown.	No sensor data is available. The RTC/PROGNOSYS communication card is not installed correctly.	• Make sure that the RTC/PROGNOSYS communication card is installed correctly. Select MAIN MENU>RTC MODULES/PROGNOSYS>PROGNOSYS>ALLOCATION MAP. Refer to the communication card installation documentation for more information. • Examine if the installation/configuration is setup correctly in the SC1000 SETUP menu.
The maintenance task was completed or the error was resolved, but the corresponding bar is still in the red area.	Error is not reset automatically or a new error shows.	• Reset the error manually. Refer to the applicable sensor manual. • Once an error is resolved, the parameters are calculated again. Examine the error list if a new error is shown.

Replacement parts

⚠ WARNING

Personal injury hazard. Use of non-approved parts may cause personal injury, damage to the instrument or equipment malfunction. The replacement parts in this section are approved by the manufacturer.

Note: *Product and Article numbers may vary for some selling regions. Contact the appropriate distributor or refer to the company website for contact information.*

Replacement parts

Description	Item no.
Telemetry-inspection contract	Available on request
PROGNOSYS communication card	LZY885.99.00002

Warranty

The manufacturer warrants that the supplied product is free of material and manufacturing defects, and undertakes to repair or to replace any defective parts without charge.

The warranty period is 24 months. If a maintenance contract is taken out within 6 months of purchase, the warranty period is extended to 60 months.

With the exclusion of further claims, the supplier is liable for defects, including the lack of assured properties, as follows: all parts that, within the warranty period calculated from the day of the transfer of risk, can be demonstrated to have become unusable or that can only be used with significant limitations owing to circumstances prior to transfer of risk, in particular due to incorrect design, substandard materials or inadequate finish, shall be repaired or replaced at the supplier's discretion. The identification of such defects must be reported to the supplier in writing as soon as possible, but no later than 7 days after the discovery of the fault. If the customer fails to notify the supplier, the product is considered approved despite the defect. Further liability for indirect or direct damages is not accepted.

If device-specific maintenance- or inspection work prescribed by the supplier is to be performed within the guarantee period by the customer (maintenance) or by the supplier (inspection) and these requirements are not met, claims for damages that result from non-observance of these requirements are void.

Further claims, in particular for consequential damages, cannot be made.

Wear and damage caused by improper handling, incorrect installation or non-designated use are excluded from this clause.

The process instruments of the manufacturer have proven their reliability in many applications and are therefore often used in automatic control loops to enable the most economical and efficient operation of the relevant process.

To avoid or limit consequential damage, it is therefore recommended that the control loop be designed such that an instrument malfunction results in an automatic changeover to the backup control system. This guarantees the safest operating condition both for the environment and the process.

PROGNOSYS register

Table 4 shows PROGNOSYS parameters that are available from the RTC/PROGNOSYS communication card. These parameters can be sent to a superordinate programmable open loop control or to a computer via a fieldbus card such as Profibus or Modbus TCP/IP.

Each communication card gives parameters for a maximum of 15 sensors. The sequence for the sensors or allocation of sensor parameters is controlled by the allocation of the sensors on the applicable communication card. Refer to Add a sensor on page 5.

Refer to the applicable fieldbus card documentation for information on the installation and configuration.

Table 4 PROGNOSYS register

Tag name	Contents	Modbus register	Data	Length
PrognosysMeasIndicator1	MEAS INDICAT 1	40171	Unsigned Integer	1
PrognosysServiceStat1	SERVICE STAT 1	40172	Unsigned Integer	1

Table 4 PROGNOSYS register (continued)

Tag name	Contents	Modbus register	Data	Length
PrognosysMeasIndicator2	MEAS INDICAT 2	40173	Unsigned Integer	1
PrognosysServiceStat2	SERVICE STAT 2	40174	Unsigned Integer	1
PrognosysMeasIndicator3	MEAS INDICAT 3	40175	Unsigned Integer	1
PrognosysServiceStat3	SERVICE STAT 3	40176	Unsigned Integer	1
PrognosysMeasIndicator4	MEAS INDICAT 4	40177	Unsigned Integer	1
PrognosysServiceStat4	SERVICE STAT 4	40178	Unsigned Integer	1
PrognosysMeasIndicator5	MEAS INDICAT 5	40179	Unsigned Integer	1
PrognosysServiceStat5	SERVICE STAT 5	40180	Unsigned Integer	1
PrognosysMeasIndicator6	MEAS INDICAT 6	40181	Unsigned Integer	1
PrognosysServiceStat6	SERVICE STAT 6	40182	Unsigned Integer	1
PrognosysMeasIndicator7	MEAS INDICAT 7	40183	Unsigned Integer	1
PrognosysServiceStat7	SERVICE STAT 7	40184	Unsigned Integer	1
PrognosysMeasIndicator8	MEAS INDICAT 8	40185	Unsigned Integer	1
PrognosysServiceStat8	SERVICE STAT 8	40186	Unsigned Integer	1
PrognosysMeasIndicator9	MEAS INDICAT 9	40187	Unsigned Integer	1
PrognosysServiceStat9	SERVICE STAT 9	40188	Unsigned Integer	1
PrognosysMeasIndicator10	MEAS INDICAT 10	40189	Unsigned Integer	1
PrognosysServiceStat10	SERVICE STAT 10	40190	Unsigned Integer	1
PrognosysMeasIndicator11	MEAS INDICAT 11	40191	Unsigned Integer	1
PrognosysServiceStat11	SERVICE STAT 11	40192	Unsigned Integer	1
PrognosysMeasIndicator12	MEAS INDICAT 12	40193	Unsigned Integer	1
PrognosysServiceStat12	SERVICE STAT 12	40194	Unsigned Integer	1
PrognosysMeasIndicator13	MEAS INDICAT 13	40195	Unsigned Integer	1
PrognosysServiceStat13	SERVICE STAT 13	40196	Unsigned Integer	1
PrognosysMeasIndicator14	MEAS INDICAT 14	40197	Unsigned Integer	1
PrognosysServiceStat14	SERVICE STAT 14	40198	Unsigned Integer	1
PrognosysMeasIndicator15	MEAS INDICAT 15	40199	Unsigned Integer	1
PrognosysServiceStat15	SERVICE STAT 15	40200	Unsigned Integer	1

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