Knick

User Manual

COMPA4400(X)-082

Protos II 4400 – Communication Module for PROFIBUS PA

Read before installation.
Keep for future use.

www.knick-international.com

Supplemental Directives

READ AND SAVE THIS DOCUMENT FOR FUTURE REFERENCE. BEFORE ATTEMPTING TO ASSEMBLE, INSTALL, OPERATE OR MAINTAIN THE PRODUCT, PLEASE ENSURE A COMPLETE UNDERSTANDING OF THE INSTRUCTIONS AND RISKS DESCRIBED HEREIN. ALWAYS OBSERVE ALL SAFETY INFORMATION. FAILURE TO COMPLY WITH INSTRUCTIONS IN THIS DOCUMENT COULD RESULT IN SERIOUS INJURY AND/OR PROPERTY DAMAGE. THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE.

These supplemental directives explain how safety information is laid out in this document and what content it covers.

Safety Chapter

This document's safety chapter is designed to give the reader a basic understanding of safety. It illustrates general hazards and gives strategies on how to avoid them.

Warnings

This document uses the following warnings to indicate hazardous situations:

Symbol	Category	Meaning	Remark
⚠	**WARNING!**	Designates a situation that can lead to death or serious (irreversible) injury.	The warnings contain information on how to avoid the hazard.
⚠	**CAUTION!**	Designates a situation that can lead to slight or moderate (reversible) injury.	
Without	**NOTICE!**	Designates a situation that can lead to property or environmental damage.	

Symbols Used in this Document

Symbol	Meaning
→	Reference to additional information
✓	Interim or final result in instructions for action
▶	Sequence of figures attached to an instruction for action
①	Item number in a figure
(1)	Item number in text

Applicable Documents

- User Manual for Protos II 4400(X) Basic Unit
- Safety Guide
- Common Interface Specification
- Interface Specification

→ *knick-international.com*

Table of Contents

1 Safety

This document contains important instructions for the use of the product. Always follow all instructions and operate the product with caution. If you have any questions, please contact Knick Elektronische Messgeräte GmbH & Co. KG (hereinafter sometimes referred to as "Knick") using the information provided on the back page of this document.

Also read the user manuals for the Protos II 4400(X) basic unit and the measuring and communication modules used. Observe the specifications and follow the safety instructions in the Safety Guide[1)]. For Ex versions, also observe the information in the documents listed in the package contents.

The COMPA4400(X)-082 is also called "device" or "product" in the following.

1.1 Intended Use

The COMPA4400(X)-082 module is a communication unit for PROFIBUS PA. The module is used in the Protos II 4400(X) industrial transmitter.

The defined rated operating conditions must be observed when using this product.
→ *Specifications, p. 30*

1.2 Personnel Requirements

The operating company shall ensure that any personnel using or otherwise interacting with the product is adequately trained and has been properly instructed.

The operating company shall comply and cause its personnel to comply with all applicable laws, regulations, codes, ordinances, and relevant industry qualification standards related to the product. Failure to comply with the foregoing shall constitute a violation of operating company's obligations concerning the product, including but not limited to an unintended use as described in this document.

1.3 Operation in Explosive Atmospheres

The COMPA4400X-082 module is certified for operation in potentially explosive atmospheres.

- EU Type Examination Certificate KEMA 03ATEX2530
- IECEx Certificate of Conformity IECEx DEK 11.0054

When installing the product in a hazardous location, observe the information in the attachment to the certificates.

Observe all applicable local and national codes and standards for the installation of electrical equipment in hazardous locations. For further guidance, consult the following:

- IEC 60079-14
- EU directives 2014/34/EU and 1999/92/EC (ATEX)

The product may be operated in various types of protection. The operating company must define and document the applied type of protection during installation. For this purpose, the checkboxes on the nameplate can be used.

Modules which have already been used shall be subjected to a professional routine test before they may be operated in another type of protection.

Prior to commissioning, the operating company must verify the intrinsic safety in accordance with the installation regulations of IEC 60079-14 for the complete interconnection of all equipment involved, including the connecting cables.

The interconnection of Ex and non-Ex modules (mixed assembly) is not permitted.

1) Safety Guide, package contents of the Protos II 4400(X) basic unit

1.3.1 Electrical Parameters

The electrical parameters are indicated in the attachment to Certificate of Conformity IECEx DEK11.0054.

2 Product

2.1 Package Contents

- COMPA4400(X)-082 module
- Installation Guide
- Test Report 2.2 in accordance with EN 10204
- Sticker showing the terminal assignment

Additional for Ex version of COMPA4400X-082:

- Appendix to certificates (KEMA 03ATEX2530, IECEx DEK 11.0054)
- Control Drawing 201.003-170
- EU Declaration of Conformity

Note: Check all components for damage upon receipt. Do not use damaged parts.

2.2 Product Identification

Function	Model Designation
Communication unit for PROFIBUS PA, non-hazardous locations	COMPA4400-082
Communication unit for PROFIBUS PA, hazardous locations	COMPA4400X-082

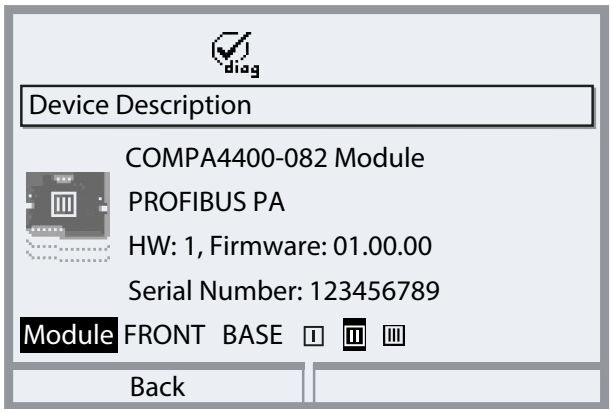
2.2.1 Firmware Version

Information on the firmware history → *knick-international.com*

This user manual describes a module with firmware version 01.00.xx.

Querying the Firmware Version

01. Diagnostics ▸ Device Description
02. Use the ***right arrow key*** to select the appropriate module slot.



Module Compatibility

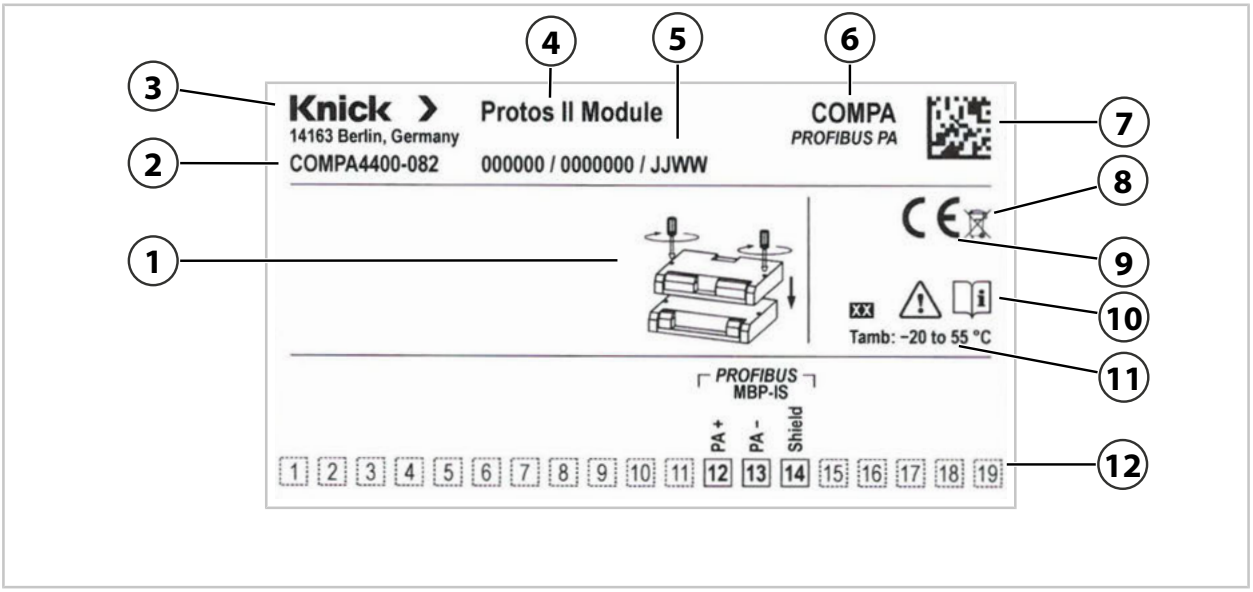
	COMPA4400-082	COMPA4400X-082
Protos II 4400 as of FRONT firmware version 01.04.00	x	
Protos II 4400X as of FRONT firmware version 01.04.00		x

2.3 Nameplate with Terminal Assignment

Nameplate

Version Without Ex Approval

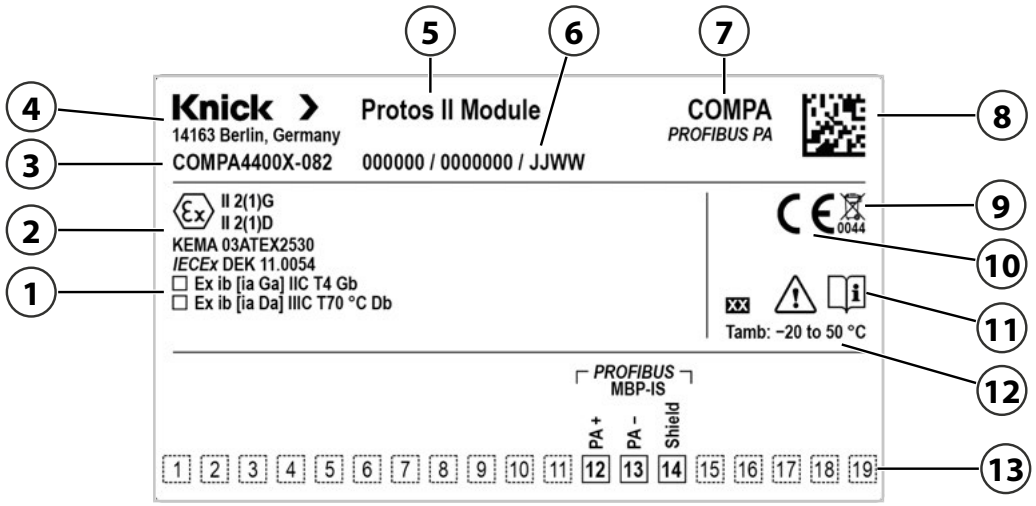
Example:



1	Installation guide	7	Data matrix code with item number and serial number
2	Model designation	8	WEEE mark
3	Manufacturer with postal address and designation of origin	9	CE mark
4	Product family	10	Special conditions, reference to product documentation
5	Item number/serial number/production year and week	11	Permitted ambient temperature
6	Industrial Ethernet protocol PROFIBUS PA	12	Terminal assignment

Version with Ex Approval

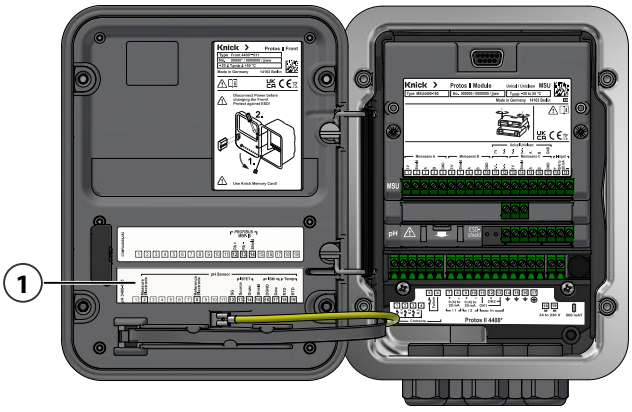
Example:



1	Selection fields for marking of the respective use by the customer	8	Data matrix code with item number and serial number
2	ATEX and IECEx mark	9	WEEE mark
3	Model designation	10	CE mark with identification number of the notified body
4	Manufacturer with postal address and designation of origin	11	Special conditions, reference to product documentation
5	Product family	12	Permitted ambient temperature
6	Item number/serial number/production year and week	13	Terminal assignment
7	Industrial Ethernet protocol PROFIBUS PA		

Terminal Plate Sticker

The terminal plate stickers for the concealed, lower-lying modules can be attached to the inner door.



1	Sticker showing the terminal assignment of the concealed modules (slot 1 and 2)

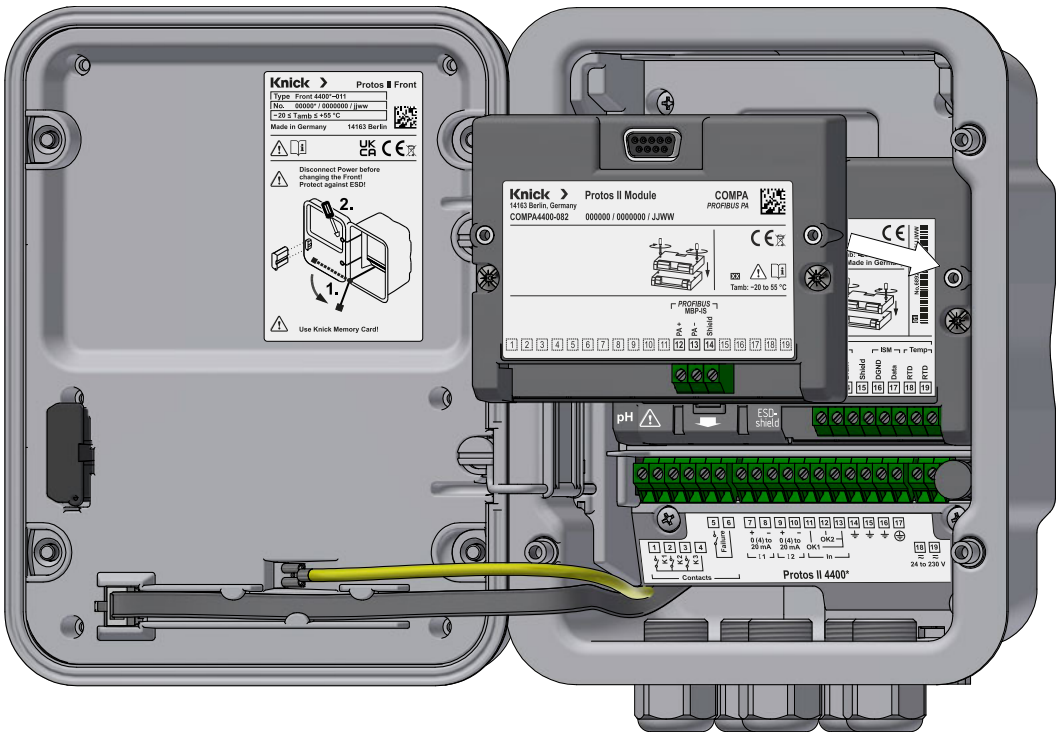
3 Installation

3.1 Inserting the Module

01. Switch off the power supply of the device.
02. Use a Phillips head screwdriver to unscrew the enclosure screws of the front unit and open the device.

⚠ WARNING! Voltages dangerous to touch. When opening the device, there may be voltages dangerous to touch in the terminal compartment. Ensure that no voltages are present before you reach into the terminal compartment.

⚠ CAUTION! Electrostatic discharge (ESD). The modules' signal inputs are sensitive to electrostatic discharge. Take measures to protect against ESD before inserting the module and connecting the inputs.



03. Connect the module to the slot (D-SUB plug), see figure.
04. Tighten the fastening screws of the module.

NOTICE! Possible damage to the cables. Strip the wires with a suitable tool. Max. stripping length 7 mm (0.27″).

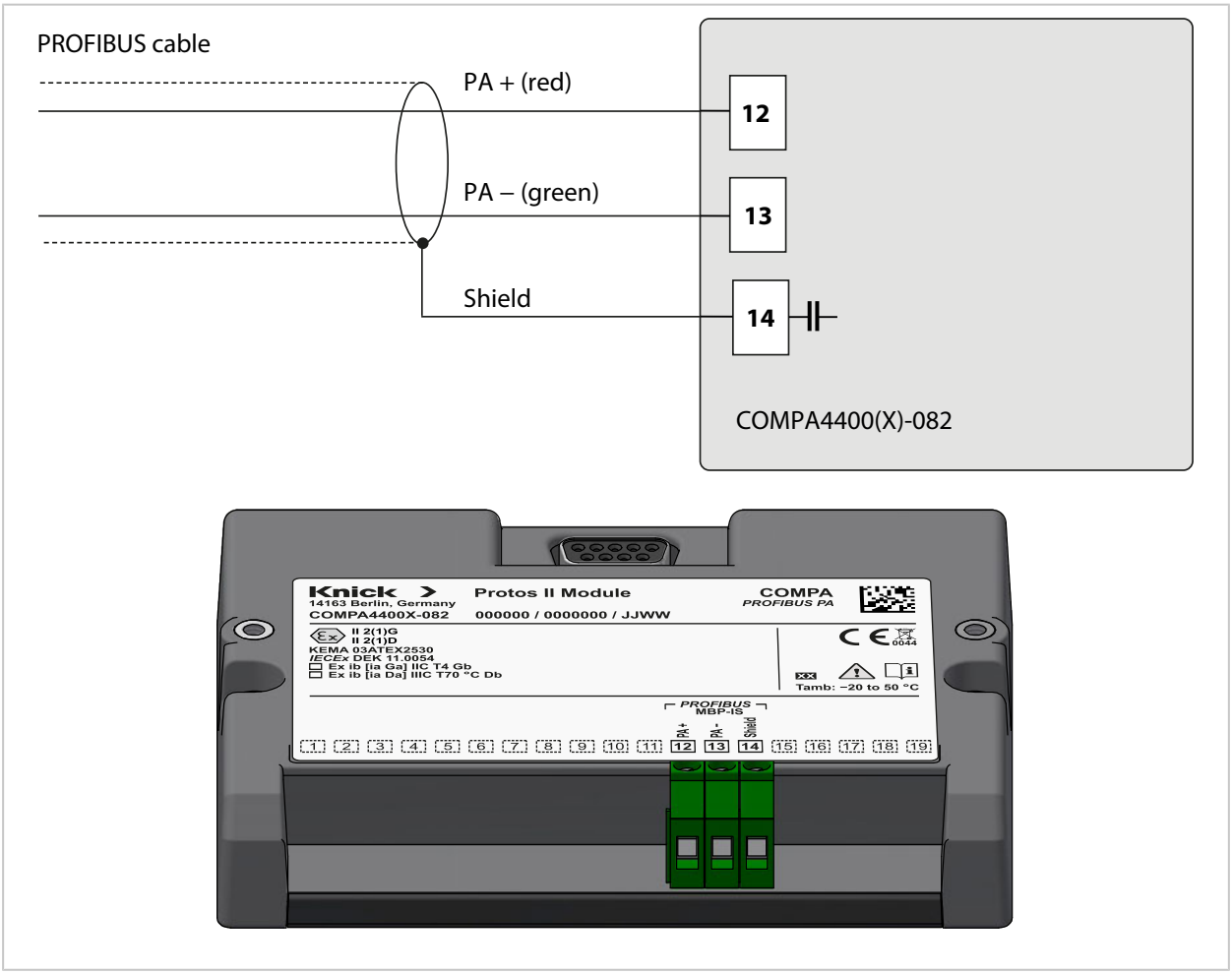
05. Connect the signal lines.
06. Check whether all connectors are correctly connected.

NOTICE! Ingress of moisture. Cable glands must have a tight fit. If necessary, insert suitable blanking plugs or sealing inserts.

07. Close the device and tighten the enclosure screws in a crosswise pattern. Tightening torque 0.5 … 2 Nm.
08. Switch on the power supply.
09. Set the module parameters. → *Parameter Setting, p. 16*

3.2 PROFIBUS PA Connection

The electrical connection of the module to PROFIBUS PA is made in accordance with the PROFIBUS Installation Guidelines (www.profibus.com).



4 Commissioning

For a description of how to commission Protos II 4400(X), see the user manual of the basic unit.

Description of how to commission PROFIBUS → *Integration with Project Planning Tools, p. 13*

4.1 Compatibility with COMPA3400(X)-081

The COMPA4400(X)-082 module is the successor to the COMPA3400(X)-081 module. To replace its predecessor in existing installations, the COMPA4400(X)-082 module offers a compatibility mode for continuing cyclic process data communication without problems.

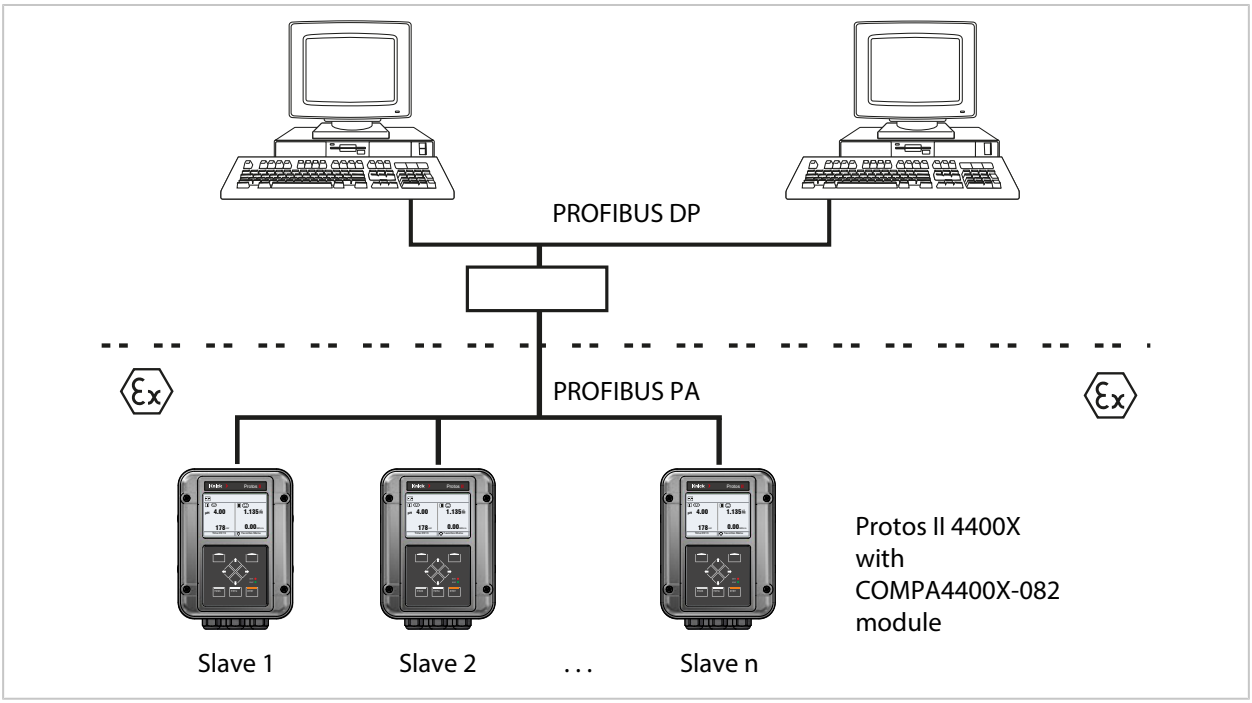
The compatibility mode is available under the following conditions:

- The GSD of the COMPA3400(X)-081 module is used for project planning.
- The IDENT_NUMBER_SELECTOR parameter of the physical block is at the value 127 (adaptation mode). The module is shipped with this value.

The compatibility mode only includes the cyclic process data communication. It does not include the parameters accessible only with acyclic accesses of the physical block, function blocks, and transducer blocks. In compatibility mode, they also correspond to the settings in the COMPA4400(X)-082 module.

5 PROFIBUS

Basic structure of a PROFIBUS system in hazardous locations:



5.1 Integration with Project Planning Tools

The following files for integration with project planning tools are available for download on our website. → *knick-international.com*

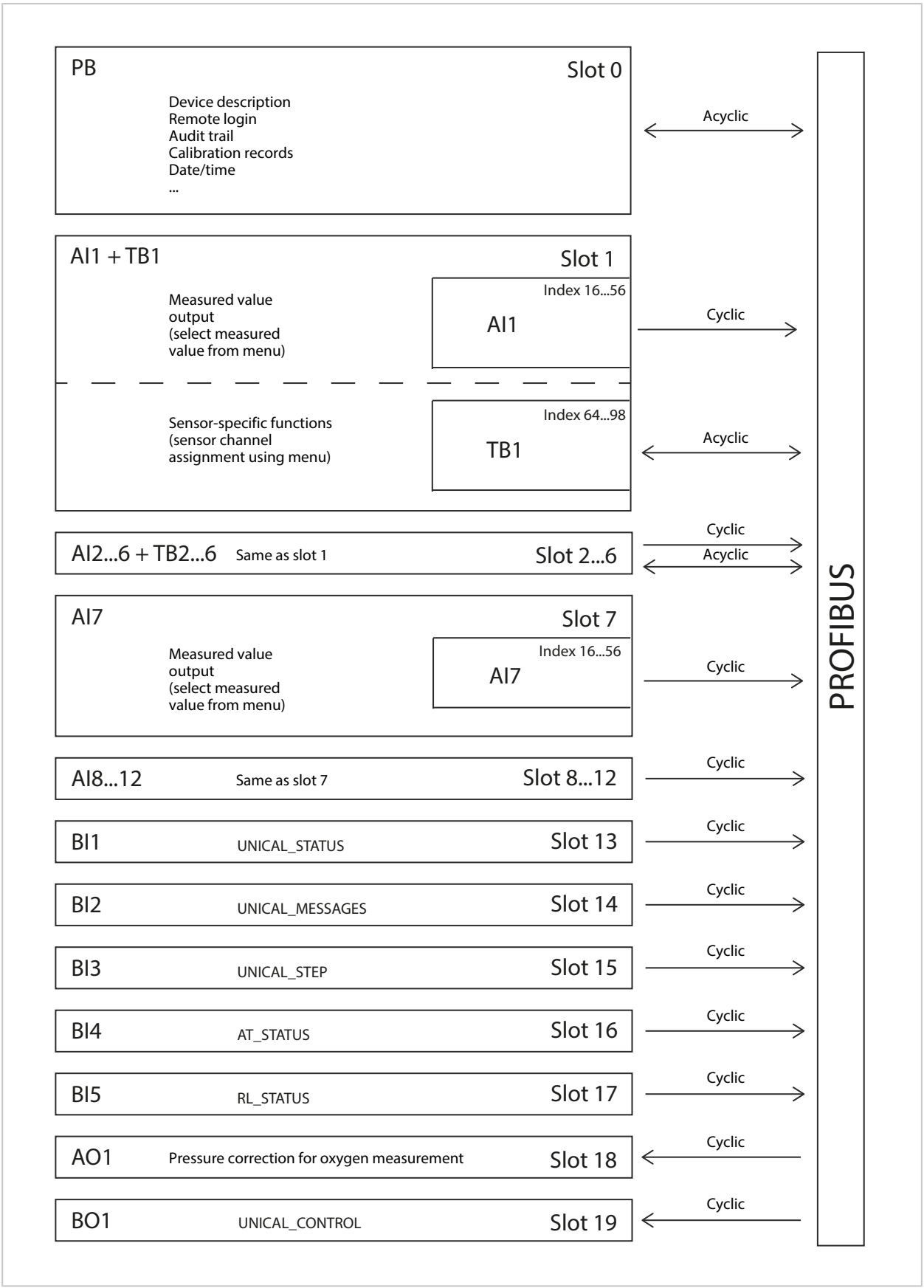
GSD: General Station Description

Device master file for planning PLC systems

5.2 Communication Model

The device parameters are summarized in three block types:

Physical block (PB), function blocks (AI, BI, BO, AO), transducer blocks (TB)



5.2.1 Physical Block (PB)

The physical block contains the general parameters that apply to the overall device, including the device description and setting the time.

With TAN option 4400-081, the remote login, audit trail, and calibration report functions are also accessible.

5.2.2 Function Blocks (AI, BI, BO, AO)

The function blocks are responsible for cyclic data communication.

- AI1 ... AI12 for transmitting measured values
- BI1 ... BI5 for transmitting status messages to Unical, Audit Trail, and Remote Login
- BO1 for transmitting control signals for Unical
- AO1 for transmitting a pressure compensation value for oxygen measurement
  → *Pressure Correction for Oxygen Measurement, p. 21*

5.2.3 Transducer Blocks (TB)

The transducer blocks transmit sensor-specific information like the type, serial number or the data of the last calibration.

5.3 PROFIBUS Commands

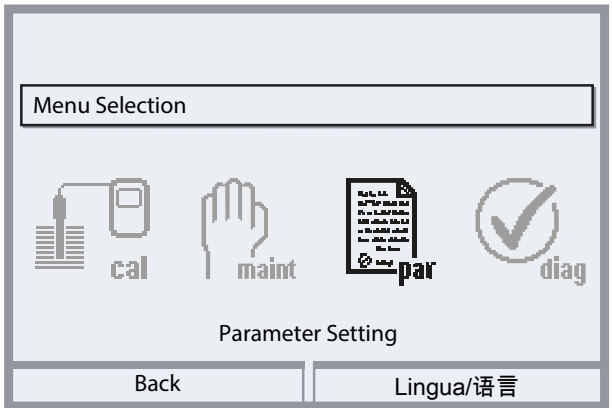
For a description of the PROFIBUS commands, see the separate interface specification document ("Interface Specification").

6 Parameter Setting

⚠ CAUTION! Incorrect parameter settings can result in incorrect outputs. A system administrator must therefore commission the COMPA4400(X)-082, set all its parameters, and protect it against unauthorized modification.

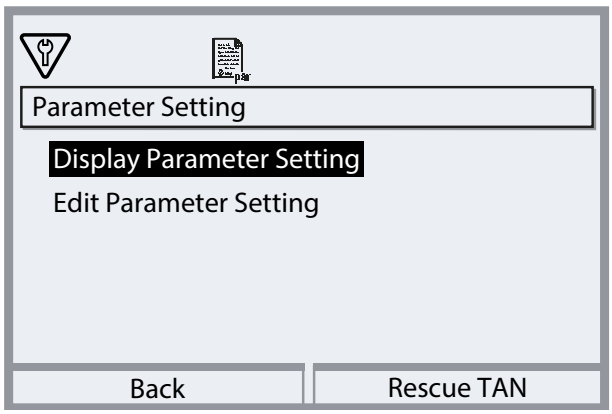
6.1 Opening Parameter Settings

01. While in measuring mode, press the ***menu*** key.
    ✓ Menu Selection opens.



02. Using the right ***arrow key***, select the Parameter Setting menu and confirm with ***enter***.
03. Select Operator Level or Administrator Level.
04. If necessary, enter the passcode (see the user manual of the basic unit).
05. Select the module.

If Audit Trail is activated (TAN option FW4400-081), the selection of the operating level is omitted:



6.2 COMPA4400(X)-082 Module Parameter Settings

Parameter Setting ▸ COMPA4400… Module

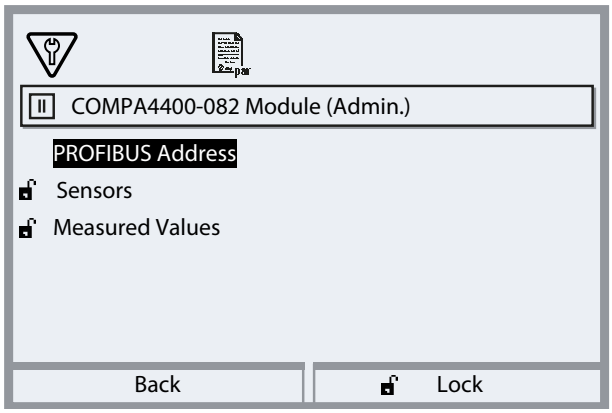
Submenu	Description
PROFIBUS Address	→ *PROFIBUS Address, p. 17*
Sensors	→ *Assigning Sensors to Transducer Blocks, p. 17*
Measured Values	→ *Setting Measured Value Parameters, p. 18*

6.2.1 PROFIBUS Address

Transmitting the PROFIBUS address to the process control system:

Parameter Setting ▸ COMPA4400… Module ▸ PROFIBUS Address

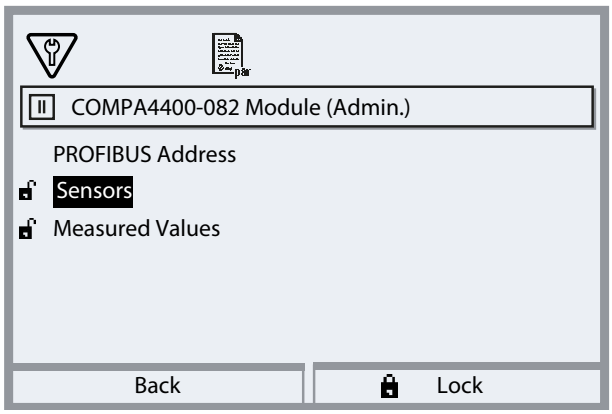
Note: During an active process data communication, the PROFIBUS address cannot be changed.



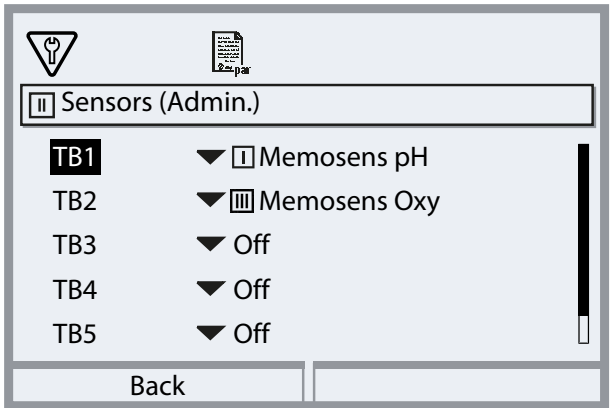
6.2.2 Assigning Sensors to Transducer Blocks

The COMPA4400(X)-082 module has 6 transducer blocks.

Sensors must be assigned to transducer blocks to enable acyclic access to the individual data of individual sensors.



01. Parameter Setting ▸ COMPA4400… Module ▸ Sensors



02. Depending on the configuration, select up to 6 sensors.
03. ***Left softkey: Back***

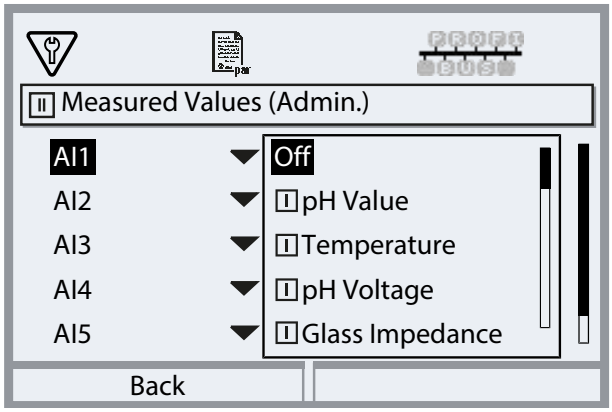
With acyclic read and write access to the transducer blocks, it is possible to subsequently access parameters of the assigned sensors: for example, identification data or the date of the last calibration.

6.2.3 Setting Measured Value Parameters

The COMPA4400(X)-082 module has 12 analog input blocks (AI1 ... AI12).

The measured value to be transmitted by an analog input block is assigned on the device:

01. Parameter Setting ▸ COMPA4400… Module ▸ Measured Values
02. Select the process variables for AI1 to AI12.



Which measured values are available depends on which modules are installed.

The control system does not automatically detect the process variables. Therefore, the assignment made on the device must be taken into account.

Available Measured Values

Note: This list is valid for FW 01.04.xx of the Protos II 4400(X) basic unit.

The selection depends on the sensor type used.

The units of measurement can be selected in the system control.

→ *Selecting Units of Measurement, p. 21*

Data Source: pH/ORP Measurement		
Process Variable	**Unit of Measurement**	**Status**
pH Value	pH	Variable
ORP	mV	Variable
Temperature	°C, °F	Variable
pH Voltage	mV	Variable
rH Value	rH	Variable
Glass Impedance	MΩ	Variable
Reference Impedance	kΩ, Ω	Variable
pH Zero Point	pH	Constant
pH Slope	mV/pH	Constant
ISFET Operating Point	mV	Constant
ORP Offset	mV	Constant
Sensoface		Constant
Cal Timer (Remain.)	h, d	Variable
Wear	%	Variable
Remaining Lifetime	h	Variable
TTM Maintenance Timer	h	Constant
DLI Lifetime Indicator	h	Constant
Operating Time	d	Constant
SIP Counter		Constant
CIP Counter		Constant
Autoclaving Counter		Constant

Data Source: Oxygen Measurement		
Process Variable	**Unit of Measurement**	**Status**
Sat. %Air	%	Variable
Saturation %O2	%	Variable
Temperature	°C, °F	Variable
Conc. (Liquid)	mg/l, ppm	Variable
Conc. (Gas)	Vol%	Variable
Sensor Current	nA	Variable
Partial Pressure	mbar, hPa, mmHg	Variable
Sensor Current (25 °C)	nA	Variable
Process Pressure	mbar, hPa, kPa, psi	Variable
Oxy Zero	nA, pA	Constant
Oxy Slope	nA	Constant
Stern-Volmer C.		Constant
Phase Angle	°	Constant
DO Offset	mbar, hPa, mmHg	Constant
Sensoface		Constant
Cal Timer (Rem.)	h, d	Variable

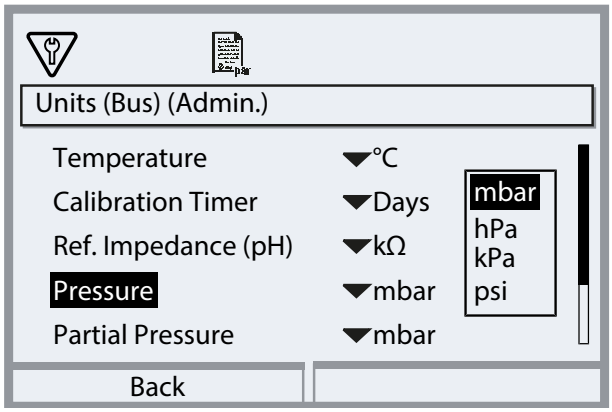
Data Source: Oxygen Measurement		
Process Variable	**Unit of Measurement**	**Status**
Wear	%	Variable
Membrane Wear	%	Constant
Interior Body Wear	%	Constant
Impedance	kΩ	Variable
TTM Maintenance Timer	h	Constant
DLI Lifetime Indicator	h	Constant
Operating Time	d	Constant
SIP Counter		Constant
CIP Counter		Constant
Autoclaving Counter		Constant

Data Source: Conductivity Measurement		
Process Variable	**Unit of Measurement**	**Status**
Conductivity	µS/cm	Variable
Temperature	°C, °F	Variable
Salinity	g/kg	Variable
Concentration	%	Variable
Resistivity	MΩ·cm	Variable
USP Value	%	Variable
TDS	mg/l	Variable
Conductance	µS	Variable
Effective Resistance	kΩ	Variable
Cell Constant	cm^{-1}	Constant
Installation Factor		Constant
Zero Point	µS	Constant
Sensoface		Constant
Operating Time	d	Constant
SIP Counter		Constant
CIP Counter		Constant
Autoclaving Counter		Constant

6.2.4 Selecting Units of Measurement

For some measured values, it is possible to select the unit of measurement in which they are to be transmitted via the fieldbus.

01. Parameter Setting ▸ Administrator Level ▸ System Control ▸ Units (Bus)

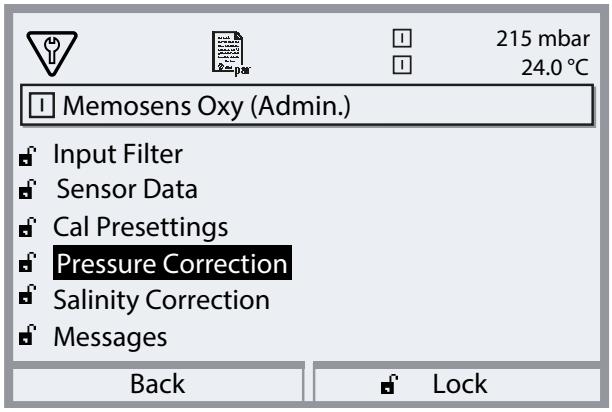


02. Select units of measurement for individual parameters.

6.2.5 Pressure Correction for Oxygen Measurement

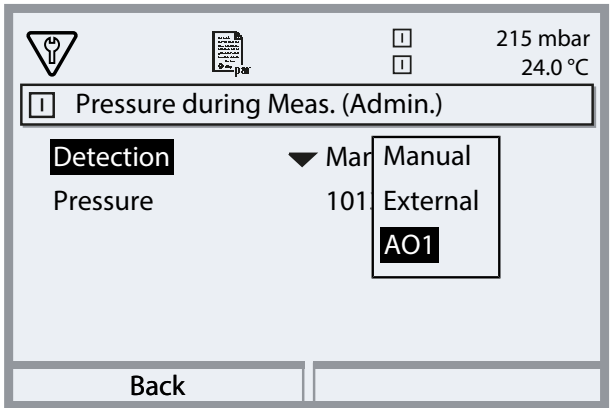
When using an oxygen module, the pressure during measurement or calibration can be corrected using the AO1 function block.

01. Parameter Setting ▸ … Module (▸ Memosens Oxy) ▸ Pressure Correction



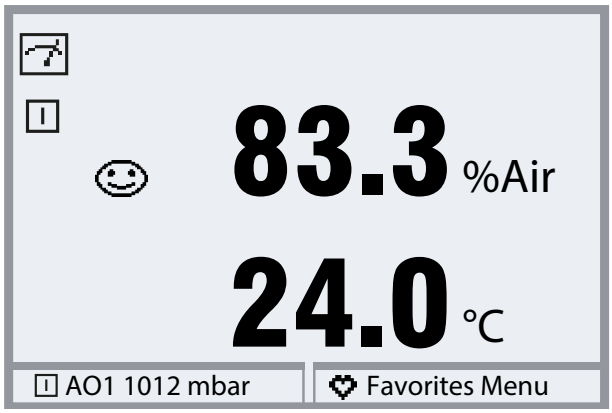
02. Open the menu: Pressure during Meas. or Pressure during Cal

03. Detection : Select "AO1".

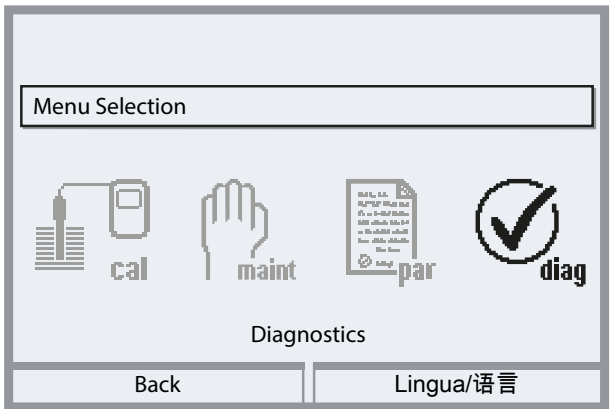


04. ***Left softkey: Back***

Press the left softkey multiple times in measuring mode to display the pressure used for the correction:



7 Diagnostics



The diagnostic functions are based on NAMUR Recommendation NE 107.

7.1 Overview of Diagnostic Functions

In diagnostics mode, you can open the following submenus without interrupting the measurement process:

Diagnostics ▸ … Module :

Submenu	Description
Module Diagnostics	→ *Module Diagnostics, p. 23*
Function Block Monitor	→ *Function Block Monitor, p. 24*
Bus Monitor	→ *Bus Monitor, p. 24*

For a description of the general diagnostics functions, see the user manual of the basic unit.

7.2 Module Diagnostics

COMPA4400(X)-082 periodically performs a device self-test in the background.

Display the results for the COMPA Module at Diagnostics ▸ COMPA4400… Module ▸ Module Diagnostics

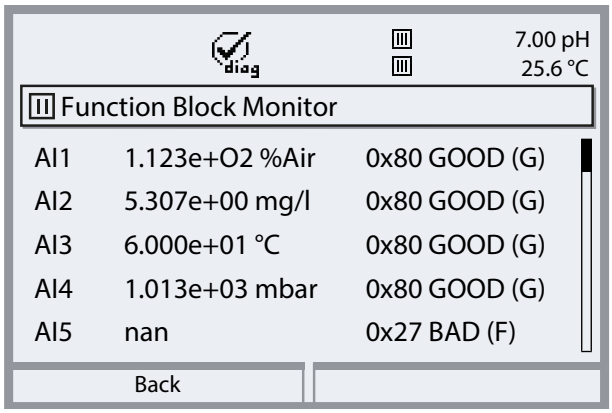
The following are checked:

- Communication
- Flash checksum
- EEPROM checksum

7.3 Function Block Monitor

Diagnostics ▸ COMPA4400… Module ▸ Function Block Monitor

Display of the values transferred in cyclic data exchange:



"nan" = "not a number" (no measured value present)

Measured value status overview → *Measured Value Status, p. 25*

7.4 Bus Monitor

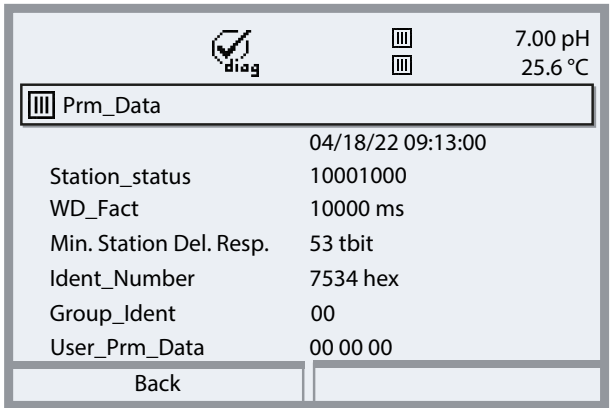
Diagnostics ▸ COMPA4400… Module ▸ Bus Monitor

Overview of parameters transmitted via the fieldbus:

- Prm_Data
- Cfg_Data
- Diag_Data

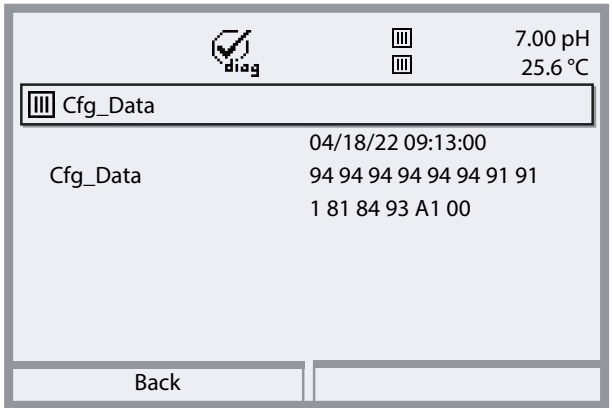
Prm_Data

Shows the data of the Set_Prm telegram in partially interpreted form.



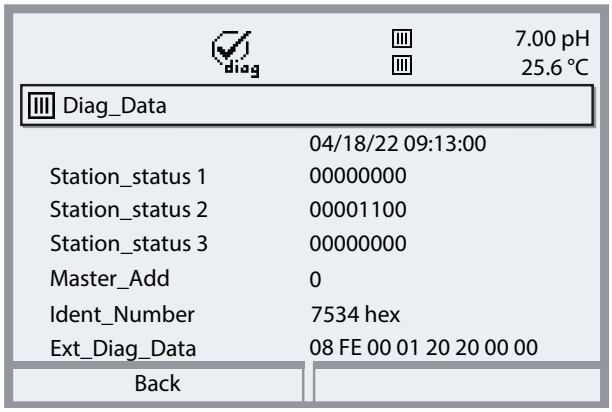
Cfg_Data

In hexadecimal form, shows the data of the Chk_Cfg telegram that the PLC uses to specify which data are to be cyclically communicated.



Diag_Data

Shows the data of the Slave_Diag telegram in partially interpreted form.



7.5 Measured Value Status

Description	Hex Value/Display	NE107 Signal	
BAD Maintenance Alarm[1]	0x24 ... 0x27 BAD (F)		Failure
UNCERTAIN Invalid Process Condition	0x79, 0x7A		Out of specification
UNCERTAIN Maintenance Demanded	0x68 ... 0x6B		Maintenance required
BAD Function Check[2]	0x3C		Function check
GOOD ok[3]	0x80 ... 0x83 GOOD (G)		Good

1) If AI configuration = off: Status 0x27
2) If function check is active.
3) If value is good or message is disabled.

8 Maintenance

Maintenance

COMPA4400(X)-082 does not require maintenance.

Repair

The user cannot repair the COMPA4400(X)-082. Please direct your repair requests to Knick Elektronische Messgeräte GmbH & Co. KG at www.knick-international.com.

9 Troubleshooting

9.1 Failure Conditions

Messages and errors are displayed with the corresponding NAMUR icon.

The message is recorded in the logbook with the date and time (Diagnostics ▸ Logbook).

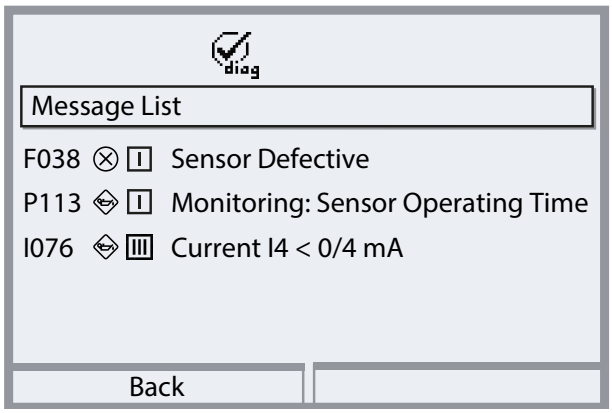
9.1.1 Messages

Message type	NAMUR icon
Maintenance request	
Out of specification	
Failure	
Function check	
Info	Info text; it is displayed directly in the relevant menu.
par	Message type is adjustable: Failure or maintenance request

Signaling via relay contacts, see the user manual of the basic unit.

Displaying Messages

01. If the "Failure" ⊗, "Maintenance Request" ◈, or "Out of Specification" ⚠ icons blink on the display, open the Diagnostics menu:
    Menu Selection ▸ Diagnostics ▸ Message List
    ✓ All active messages are displayed in the Message List menu item with the following information: Error number, type (failure, maintenance request, out of specification), channel, message text.



02. Scroll forward and backward with the ***up/down arrow keys***.

Note: For information on troubleshooting, see the user manual of the corresponding module.

Note: The message is deleted from the message list around 2 s after troubleshooting.

General Errors

Error	Possible Cause	Remedy
No connection via PROFIBUS	PROFIBUS cable connected incorrectly.	Check the connection. Connect the cable correctly.
	Terminating resistor set incorrectly (by customer).	Check the termination, correct if required.
	Incorrect PROFIBUS address	Check the address, correct if required.
Measured value with incorrect unit of measurement	Parameters for unit of measurement set incorrectly.	Correct the parameter setting: Parameter Setting ▸ System Control ▸ Units (Bus)
Unical cannot be controlled via the process control system.	The COMPA4400(X)-082 module was not assigned during parameter setting.	Correct the parameter setting: Parameter Setting ▸ MSU4400… Module– Unical ▸ Installation ▸ External Control (PCS) ▸ Bus Channel : Select the module used.
Audit trail: Remote login or calibration record does not work on the process control system.	The COMPA4400(X)-082 module was not assigned to the corresponding channels in the system control.	Correct the parameter setting: Parameter Setting ▸ System Control ▸ Audit Trail : Assign the COMPA4400(X)-082 module to the corresponding channels.

10 Decommissioning

10.1 Disposal

Observe the local regulations and laws around disposal.

Customers can return their electrical and electronic waste devices.

For details on how to return and dispose of electrical and electronic devices in an environmentally friendly manner, please refer to the manufacturer's declaration on our website. If you have any queries, suggestions, or questions about how Knick recycles electrical and electronic waste devices, please send us an email: → *support@knick.de*

10.2 Return Delivery

If a product must be returned, send it to the responsible local representative in a clean condition and securely packaged. → *www.knick-international.com*

11 Specifications

11.1 Module

Product name	Non-hazardous locations: COMPA4400-082 Hazardous locations: COMPA4400X-082
Explosion protection (COMPA4400X-082)	See the appendix to the certificates or Control Drawings for the entity parameters
Enclosure	
Material	PC/ABS blend, black
Dimensions (width × height × depth)	Approx. 118 × 21 × 91 mm (4.65 × 0.83 × 3.58″)
Protection rating	IP20
Terminals	
Screw terminals	For single wires and stranded wires 0.2 … 2.5 mm^2
Tightening torque	0.5 … 0.6 Nm
Wiring	
Stripping length	Max. 7 mm (0.27″)
Ferrules	0.25 … 2.5 mm^2
Temperature resistance	> 75 °C (167 °F)

11.2 Ambient Conditions

Climatic class	3K5 in accordance with EN 60721-3-3
Location class	C1 in accordance with EN 60654-1
Ambient temperature, operation	Non-Ex: –20 … 55 °C (–4 … 131 °F) Ex: –20 … 50 °C (–4 … 122 °F)
Ambient temperature, transport/storage	–20 … 70 °C (–4 … 158 °F)
Relative humidity	5 … 95%

11.3 Compliance

EMC	EN 61326-1, EN 61326-2-3, NAMUR NE 21
Emitted interference	Industrial applications[1)] (EN 55011, Group 1, Class A)
Immunity to interference	Industrial applications
Lightning protection	EN 61000-4-5, installation class 2
RoHS conformity	EU Directive 2011/65/EU

1) This equipment is not designed for domestic use, and is unable to guarantee adequate protection of the radio reception in such environments.

11.4 PROFIBUS

PROFIBUS PA	Galvanic isolation up to 60 V COMPA4400X-082: Digital communication in hazardous locations via current modulation (Ex ia IIC)	
Physical interface	MBP-IS (in accordance with EN 61158-2), for use in a FISCO system	
Transmission rate	31.25 kbit/s	
Communication protocol	PROFIBUS DP-V1	
Profile	PROFIBUS PA 4.02	
Address range	1 ... 126, factory setting 126, can be set on device	
Supply voltage	FISCO	17.5 V 24 V
Current consumption	< 12 mA	
Max. fault current (FDE)	< 15 mA	

12 Abbreviations

ABS	Acrylonitrile butadiene styrene
AI	Analog input
AO	Analog output
AT	Audit trail
BI	Binary input
BO	Binary output
CIP	Cleaning in place
DD	Device description
DLI	Dynamic lifetime indicator
DO	Dissolved oxygen
DTM	Device type manager
EEPROM	Electrically Erasable Programmable Read-only Memory
EMC	Electromagnetic Compatibility
EN	European standard
ESD	Electrostatic discharge
EU	European Union
FDT	Field device tool
GSD	Generic station description (device master file)
IEC	International Electrotechnical Commission
IECEx	IEC System for Certification to Standards relating to equipment for use in Explosive Atmospheres
IEEE	Institute of Electrical and Electronics Engineers
IP	International Protection/Ingress Protection
ISFET	Ion-sensitive field-effect transistor
MBP-IS	Manchester Coded Bus Powered – Intrinsically Safe
NAMUR	User Association of Automation Technology in Process Industries
NE 107	NAMUR recommendation 107: "Monitoring and Diagnosis of Field Devices"
PB	Physical block
PC	Polycarbonate
PCS	Process control system
RL	Remote login
RoHS	Restriction of Hazardous Substances
SIP	Sterilization in place
TAN	Transaction number (activation code for add-on functions)
TB	Transducer block
TDS	Total dissolved solids
TTM	Time to maintenance
USP	U.S. Pharmacopeia

Notes

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The latest documents are available for download on our
website under the corresponding product description.

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