

Read before installation.
 Keep for future use.

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Safety

Read the user manual for the basic unit (FRONT and BASE modules) and the corresponding measuring and communication modules, observe the technical specifications and follow the safety instructions in the safety guide (Package Contents for the basic unit Protos II 4400(X)) – for Ex versions, additionally the information provided in the documents in the Package Contents.

The user manual, safety guide and other product information can be downloaded from www.knick.de.

NOTICE! Potential damage.
 Never try to open the module. The Protos modules cannot be repaired by the user. For inquiries regarding module repair, please contact Knick Elektronische Messgeräte GmbH & Co. KG at www.knick.de.

Intended Use
 The module is a communication unit for FOUNDATION Fieldbus.

Note: The specifications on the module's rating plate take precedence.

Package Contents

- Communication module
- Installation Guide
- Test report 2.2
- Adhesive label with terminal assignments
- For Ex version COMFF 3400X-085:
- Appendix to certificates (KEMA 03ATEX2530, IECEx DEK 11.0054)
- EU Declaration of Conformity
- Control Drawings

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

Operating States

The function check (HOLD) operating state is active:

- During calibration (only the corresponding channel)
- During maintenance
- During parameter setting
- During the automatic rinse cycle
- (use of the rinse contact)

The behavior of the current outputs depends on the parameter setting, i.e., they may be frozen at the last measurement or set to a fixed value.

For detailed information, refer to the user manual of the basic unit (FRONT and BASE modules).

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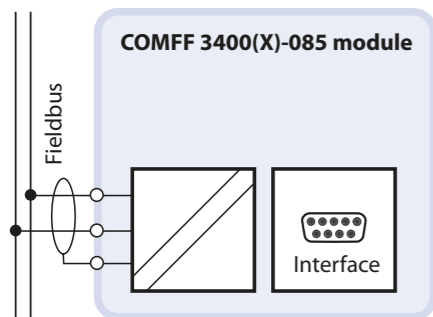
Local Contacts
 www.knick-international.com

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 This document was created on April 8, 2019.
 The latest documents are available on our website below the corresponding product description.
 Installation guides can be downloaded in the following languages: German, English, French, Spanish, Portuguese



TI-201.085-KNE01

Device Overview/Module Concept



WARNING! Shock potential.
 Make sure the device is de-energized before reaching into the terminal compartment.



Memory card slot
 Follow the instructions in the installation guide for the memory card.

Terminal plate adhesive label ("concealed" modules)
 The adhesive labels (Package Contents) for the modules at slot 1 or slot 2 can be affixed here. This simplifies maintenance and service.

Module configuration
 Any combination of up to 3 measuring and communication modules is possible. Module identification: Plug & Play

Inserting the Module

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

Note: Strip the insulation from the wires using a suitable tool to prevent damage.

1. Switch off the power supply to the device.
2. Open the device (loosen the 4 screws on the front).
3. Plug the module into the slot (D-SUB connector), see figure on the right.
4. Tighten the module's fastening screws.
5. Connect the signal lines (see next page).
6. Check whether all connections are correctly wired.
7. Close the device by tightening the screws on the front.
8. Switch on the power supply.
9. Assign the process variables to AI blocks on the device.

CAUTION! Incorrect measurement results.
 Incorrect parameter setting, calibration or adjustment may result in incorrect measurements being recorded. Protos must therefore be commissioned by a system specialist, all its parameters must be set, and it must be fully adjusted.



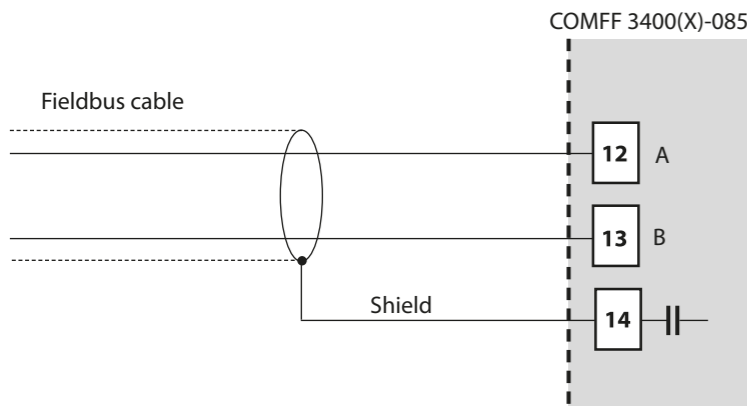
NOTICE! Moisture ingress.
 Cable glands must be tightly sealed. Insert filler plugs or sealing inserts if necessary.

Module Compatibility

	Protos 3400	Protos 3400X	Protos II 4400	Protos II 4400X
Protos COMFF 3400-085 module	x		x	
Protos COMFF 3400X-085 module		x		x

Wiring

The electrical connection between the module and FOUNDATION Fieldbus is in accordance with FISCO (Fieldbus Intrinsically Safe Concept, www.fieldbus.org).



Menu Overview for the COMFF 3400(X)-085 Module

(For detailed information on parameter setting, see the user manual)

Parameter setting

AI-TB1/TB2 configuration	
• Measuring module	Assign the measuring module
• Analog Input I1...4	Assign the process variables of a module to Analog Input blocks 1...4

Diagnostics

Module diagnostics	Internal function test
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Initial Start-Up

During initial start-up, the device description files (*.cff, *.sym, and *.ffo) must be installed in the control system (for a detailed description, see the user manual).

The DD can be downloaded from our website.

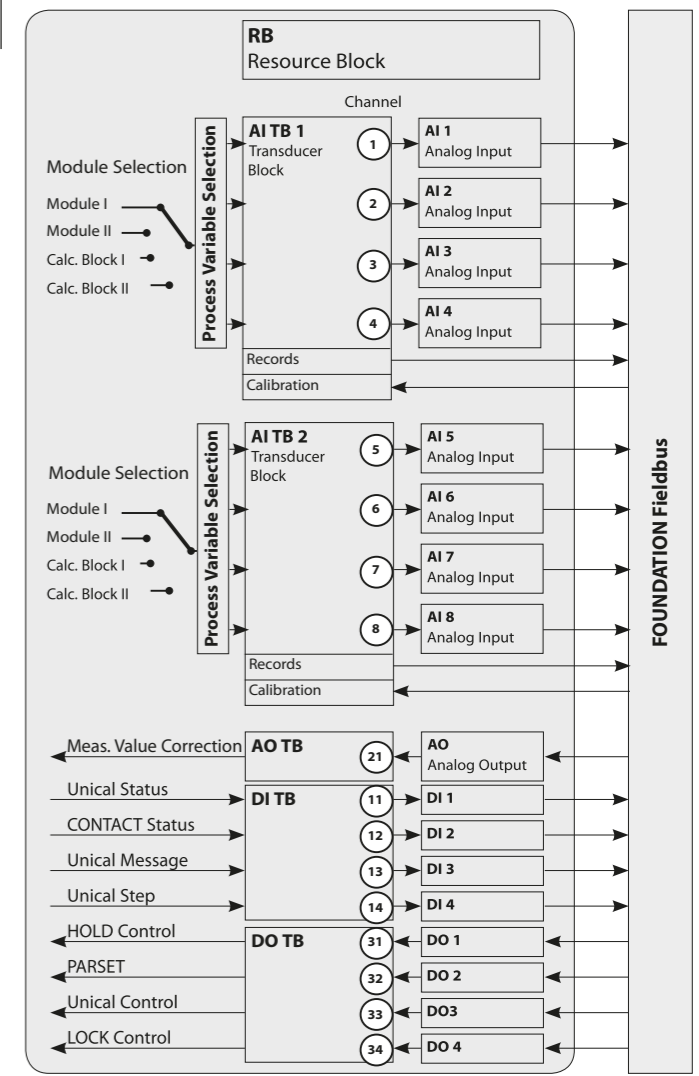
Parameter setting on the device

AI configuration

- MODE_BLK.TARGET: OOS
- CHANNEL: Process variable
- XD_SCALE: Unit of measure
- OUT_SCALE: Unit of measure
- LIN_TYPE: Direct

Note:

Be sure to observe the operating instructions and the menu guidance of the control system or the configuration tool during installation and configuration via the control system.



Messages/Troubleshooting (for detailed tables, see the user manual)

Error/Message (Diagnostics Menu: Message List)	Possible Causes	Remedy
Display is blank	FRONT or BASE power supply interrupted Input fuse has tripped Display switch-off is active	Check the power supply Replace the fuse (500 mA T) Deactivate the display switch-off
No measurement, no error message	Module not plugged in correctly	Install the module correctly Check the measurement display under "Parameter setting / Administrator level / FRONT Module"
No fieldbus connection	Fieldbus cable connected incorrectly Terminating resistor set incorrectly (on-site)	Check the connection Check termination (on-site)
B073/ B078	Current I1/I2, load error	Open current output I1/I2: Current loop not closed, cable interrupted
F232	Module configuration Ex/safe area	Ex and safe area modules have been inserted. Select a uniform configuration (either Ex or safe area)

Specifications (Extract)

FOUNDATION Fieldbus FF-H1	COMFF 3400X-085: Digital communication in hazardous areas via current modulation (Ex ia IIC)
Physical interface	According to IEC 61158-2
Transfer rate	31.25 kbits/s
Communication protocol	FF-816
Profile	FF_H1 (FOUNDATION Fieldbus)
Bus address	Visible on the device, cannot be set
Supply voltage (FISCO)	Bus supply 9 ... 17.5 V Linear barrier 9 ... 24 V
Current consumption	< 12 mA
Max. current in case of fault (FDE)	< 17 mA

RoHS conformity	According to EU directive 2011/65/EU
EMC	EN 61326-1, EN 61326-2-3 NAMUR NE 21
Emitted interference	Industrial applications ¹⁾ (EN 55011 Group 1 Class A)
Interference immunity	Industrial applications
Lightning protection	to EN 61000-4-5, Installation class 2
Rated operating conditions	
Ambient temperature	Safe area: -20 ... 55 °C / -4 ... 131 °F Ex: -20 ... 50 °C / -4 ... 122 °F
Relative humidity	10 ... 95 %, not condensing
Transport/storage temperature	-20 ... 70 °C / -4 ... 158 °F
Screw clamp connector	Single or stranded wires up to 2.5 mm ²

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