



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 provides 2 passive current outputs for transmission of any desired process variables and 4 electronic relay outputs for limit monitoring.

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

Package Contents

- Measuring module
- Installation Guide
- Test report 2.2
- Adhesive label with terminal assignments
- For Ex version OUT 3400X-071:
 - 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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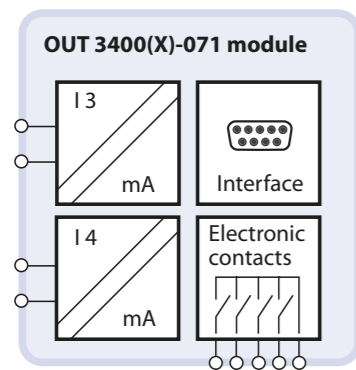
Local Contacts
 www.knick-international.com

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 Version: 1
 This document was created on April 12, 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

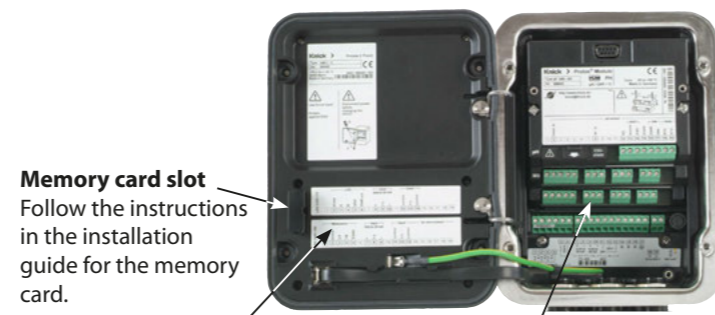


TI-201.071-KNE01

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 "Wiring" on the 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.

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.
 The cable glands must be tightly sealed. Insert filler plugs or sealing inserts if necessary.

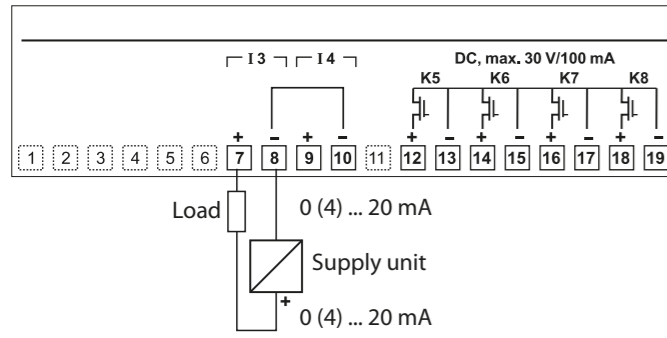
Module Compatibility

	Protos 3400	Protos 3400X	Protos II 4400	Protos II 4400X
Protos OUT 3400-071 module	x		x	
Protos OUT 3400X-071 module		x		x

Wiring

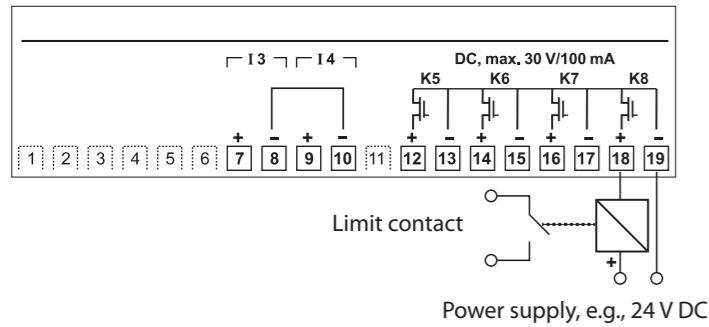
Wiring Example 1 (one output)

Current output I3 or I4 (passive, supply unit required)



Wiring Example 2

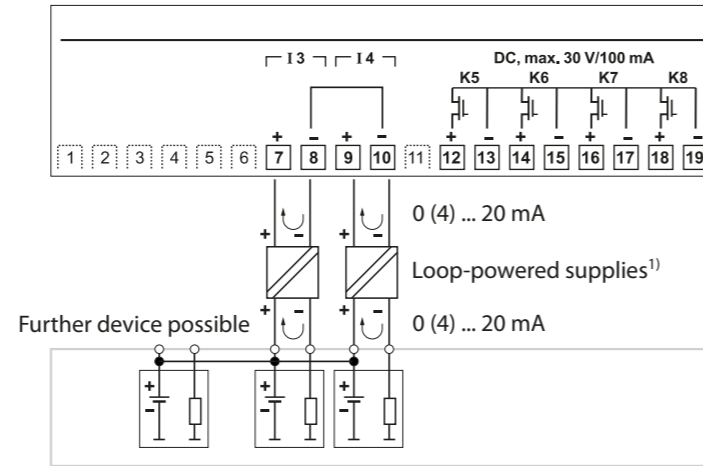
Electronic relay contacts



Wiring Example 3

(two outputs: feeding PLC with common positive pole)

Current outputs I3 and I4 (two loop-powered supplies)



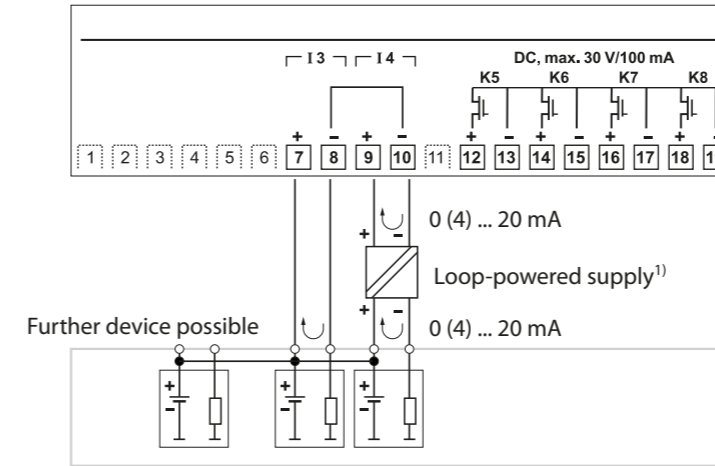
Note:

- The module's current outputs are passive and must be supplied with power.
- Observe the polarity.
- Note when wiring: The negative poles of the OUT 3400(X)-071 module are internally connected.

Wiring Example 4

(two outputs: feeding PLC with common positive pole)

Current outputs I3 and I4 (one loop-powered supply)



NOTICE! When using only one loop-powered supply and connecting more devices, make sure that the device potentials are properly isolated.

- 1) e.g., loop-powered isolator for standard signals P22401 (1 channel) or P22402 (2 channels)
For explosive atmospheres:
WG 25 A7 loop-powered supply

Menu Overview for the OUT 3400(X)-071 Module

Parameter Setting

Output current I3/I4 (separately definable)	
Process variable	Depending on the modules installed
Characteristic	Linear, trilinear, function, table
Output	0/4 ... 20 mA
Output filter	Time interval
Behavior during messages	Status during function check (HOLD) 22 mA message in the event of an error
Limit contacts K5 ... K8 (separately definable)	
Process variable	Depending on the modules installed
Limit value	Entry
Hysteresis	Entry
Effective direction	Min / Max
Contact type	Normally open (N/O), normally closed (N/C)
ON delay	Entry
OFF delay	Entry

Maintenance

Current source	Output current definable 0 ... 22 mA
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Diagnostics

Message list	List of all warning and failure messages
Logbook	Shows the last 50 events with date and time
Meas. point description	Shows the tag number and annotation (input in system control)
Device description	Hardware version, serial no., (module) firmware, options
Module diagnostics	Internal function test
Output status	Status of signal outputs (current load, limit values)

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"
B073/ B078	Current I1/I2, load error	Open current output I1/I2: Current loop not closed, cable interrupted	Check the current loop Deactivate the current outputs
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)

Current output I3, passive	0/4... 20 mA (22 mA), floating (galvanically connected with output I4)	RoHS conformity	According to EU directive 2011/65/EU
Supply voltage	3 ... 30 V, $I_{max} = 100 \text{ mA}$, $P_{max} = 0.8 \text{ W}$	EMC	EN 61326-1, EN 61326-2-3 NAMUR NE 21
Load monitoring	Error message if load is exceeded	Emitted interference	Industrial applications ²⁾ (EN 55011 Group 1 Class A)
Overrange ¹⁾	22 mA in the case of a message	Interference immunity	Industrial applications
Measurement error ²⁾	< 0.25 % of current value + 0.05 mA	Lightning protection	to EN 61000-4-5, Installation class 2
Start/end of scale ¹⁾	As desired within range	Rated operating conditions	
Current source	0.00 ... 22.00 mA	Ambient temperature	Safe area: -20 ... 55 °C / -4 ... 131 °F Ex: -20 ... 50 °C / -4 ... 122 °F
Current output I4, passive	Galvanically connected with output I3, identical data	Relative humidity	10 ... 95%, not condensing
Limit value outputs K5 - K8	4 electronic relay outputs, polarized, floating, inter-connected	Transport/storage temperature	-20 ... 70 °C / -4 ... 158 °F
Voltage drop	< 1.2 V	Screw clamp connector	Single or stranded wires up to 2.5 mm ²
Load capability	DC: $V_{max} = 30 \text{ V}$, $I_{max} = 100 \text{ mA}$, $P_{max} = 0.8 \text{ W}$		

- User-defined
- At rated operating conditions
- This equipment is not designed for domestic use, and is unable to guarantee adequate protection of the radio reception in such environments.