



Janitza 800-CT8-LP Current Measuring Module Installation Guide

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Janitza®

Janitza 800-CT8-LP Current Measuring Module



Product Information

800-CT8-LP Module

The 800-CT8-LP Module is a current measuring module designed for the UMG 801 device by Janitza Electronics GmbH. The module measures the current of electrical circuits and provides accurate readings to users. The product has been tested and conforms to relevant laws, standards, and directives, which can be found on the company's website.

Technical Specifications

- Mounting position: Any
- Mounting type: Suitable for 35 mm DIN rail
- Impact resistance: IK07 according to IEC 62262
- Free fall: 1 m (39.37 in)
- Temperature: Operating temperature range is specified
- Relative humidity: Maximum relative humidity of 95%
- Input impedance per channel: 230 k
- The nominal input signal of the module: 0 ... 400 mV
- Crest factor: 1.8
- Sampling frequency: 6.8 kHz
- Fundamental frequency range: 40 Hz .. 70 Hz

- Harmonics: 1 .. 15 (only odd)
- Protection class: Not required

Product Usage Instructions

Before using the 800-CT8-LP Module, it is important to ensure that the device is installed correctly. Here are the instructions:

Installation

1. Ensure that the power supply is switched off before installing the module.
2. Mount the module on the suitable 35 mm DIN rail.
3. Connect the module to the UMG 801 device using the bus connectors provided.
4. Secure the module in place using the locking mechanism provided.

Current Measurement

The 800-CT8-LP Module is designed to measure the current of electrical circuits. To use this module, follow these instructions:

1. Ensure that the power supply is switched off before connecting the module to the electrical circuit.
2. Connect the current-carrying wires to the module's terminals according to the wiring diagram provided in the user manual.
3. Turn on the power supply and allow the module to measure the current of the electrical circuit.

Demontage

If you need to remove the 800-CT8-LP Module, follow these instructions:

1. Switch off the power supply before removing the module.
2. Use a screwdriver to unlock the locking mechanism of the module.
3. Disconnect the module from the UMG 801 device using the bus connectors provided.
4. Remove the module from the DIN rail.

For more information on using the 800-CT8-LP Module, please refer to the user manual provided by Janitza Electronics GmbH.

General

Disclaimer

Compliance with the usage information for the devices, modules, and components is a prerequisite for safe operation and attaining the stated performance characteristics and product features. Janitza Electronics GmbH assumes no liability for bodily injury, material damage, or financial losses which result from disregard of the usage information. Make sure that your usage information is readily available and legible. Further usage information, such as the installation manual or the user manual for the basic device, can be found on our website, www.janitza.com under Support > Downloads

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Subject to technical alterations.

- Make sure that your device, module or component matches the installation manual.
- First, make sure you have read and understood the usage information accompanying the product.
- Keep the usage information associated with the product available for the entire service life and pass it on to any possible subsequent users.
- Please find out about device revisions and the associated modifications of the usage information associated with your product at www.janitza.com.

Disposal

Please abide by national regulations! Dispose of individual parts, as applicable, depending on their composition and existing country-specific regulations. e.g. as:

- Electronic waste
- Batteries and rechargeable batteries
- Plastics
- Metals or engage a certified disposal company to handle scrapping.

Relevant laws,

standards and directives used Please see the declaration of conformity on our website (www.janitza.com) for the laws, standards, and directives applied for the device by Janitza Electronics GmbH.



INFORMATION

Our usage information uses the grammatical masculine form in a gender-neutral sense! This form always refers equally to women, men, and diversity. In order to make the texts more readable, distinctions are not made. We ask for your understanding of these simplifications.

Safety

Safety information

The installation manual does not represent a complete set of all safety measures required for the operation of the device (module/component). Special operating conditions can require additional measures. The installation manual contains information that must be observed to ensure your personal safety and avoid material damage. Symbols used on the device (module/component):

	The additional symbol on the device itself indicates an electrical danger that can result in serious injuries or death.
	This general warning symbol draws attention to a possible risk of injury. Be certain to observe all of the information listed under this symbol in order to avoid possible injury or even death.

Safety information in the installation manual is marked by a warning triangle and, in dependence on the degree of hazard, is displayed as follows:

DANGER

Warns of an imminent danger that results in serious or fatal injury (death).

WARNING

Warns of a potentially hazardous situation that could result in serious injury or death.

CAUTION

Warns of a possibly hazardous situation that can result in minor or moderate injury.

ATTENTION

Warns of an immediately hazardous situation that, if not avoided, can result in material or environmental damage.

INFORMATION

Indicates procedures in which there is no hazard of personal injury or material damage.

Safety measures

When operating electric devices, it is unavoidable for certain parts of these devices and their components to conduct hazardous voltage. Consequently, severe bodily injury or material damage can occur if they are not handled properly.

- Before making connections to the device and its components, ground the device by means of the ground wire connection, if present.
- Hazardous voltages can be present in all circuitry parts that are connected to the power supply.
- There can still be hazardous voltages present in the device or the components even after disconnection from the supply voltage (capacitor storage).
- Do not operate equipment with current transformer circuits when open.

- Do not exceed the limit values specified in the user manual and on the rating plate! This must also be observed during testing and commissioning!
- Observe the safety information and warning notices in the usage information associated with the device and its components!

WARNING

Hazard due to disregard of warning and safety information! Disregarding the warnings and safety information on the device itself and in the usage information for the device and its components can lead to injuries or even death! Observe the safety information and warning notices on the device itself and in the usage information associated with the devices and their components, such as:

- Installation manual.
- Installation supplement.
- User manual.
- Supplement Safety Information.

Qualified personnel

To avoid bodily injury and material damage, only qualified personnel with electrical training are permitted to work on the basic device and its components who have knowledge of:

- The national accident prevention regulations.
- Safety technology standards,
- Installation, commissioning, and operation of the device and the components.

WARNING

Risk of injury due to electric voltage or electric current! When handling electric currents or voltages, serious bodily injury or death can result from:

- Touching bare or stripped leads that are energized.
- Device inputs that pose a hazard when touched. Before starting work on your system:
- Disconnect the supply of power to the system!
- Secure it against being switched on!
- Check to be sure it is de-energized!
- Ground and short circuit!
- Cover or block off adjacent live parts!

Intended use

The modules/components

- Are intended only for use in the field of industrial controls.
- Are intended as expansion or transfer modules for the UMG 801 basic device in switchboard cabinets and small distribution boards. Please observe the usage information associated with the basic device.

- Only mount with the basic device disconnected from the power supply (see “Mounting” step).
- Not intended for installation in vehicles! Use of the basic device with modules in non-station- ary equipment is considered an exceptional environmental condition and is only permissible by special agreement.
- Not intended for installation in environments with harmful oils, acids, gases, vapors, dust, radiation, etc.

Incoming goods inspection

The prerequisites for trouble-free and safe operation of the devices, modules, and components include proper transport, storage, setup, and assembly, as well as proper operation and maintenance. Exercise due caution when unpacking and packing the device, do not use force, and only use suitable tools. Check:

- Visually inspect the devices, modules, and components for flawless mechanical condition.
- Check the scope of delivery (see user manual) for completeness before you begin installing your devices, modules, and components.

If it can be assumed that safe operation is no longer possible, take your device, module, or component out of operation immediately! Secure against the unintentional startup. It can be assumed that safe operation is impossible if the basic device, module, or component, for example:

- Has visible damage.
- No longer functions despite an intact power supply.
- Was subjected to extended periods of unfavorable conditions (e.g. storage outside of the permissible climate thresholds without adjustment to the room climate, condensation, etc.) or transport stress (e.g. falling from an elevated- ed position, even without visible external damage, etc.).

Brief device description



The current measuring module

- extends the functional range of the basic device to include additional current measuring channels (2 groups of 4 current measuring channels each);
- is suitable for low-power current transformers (LP current transformers) with transformer ratios of 0 – 400 mV.
- The basic device (UMG 801)
- allows the mounting of up to 10 current measuring modules of type 800-CT8-LP.
- with a current measuring module, measuring current exclusively via current transformers. The LP current transformers require double insulation throughout in accordance with IEC 61010-1:2010 to mains or measuring circuits.

WARNING

Damage to the device/module or your installation up to life-threatening injuries due to a short circuit. Insufficient insulation of the equipment (LP current transformers) at the current measurement inputs with respect to the mains circuits can lead to life-threatening voltages or damage to your device, module or installation. Observe the data and specifications of your LP current transformer for insulation and ensure continuous double insulation of your LP current transformers to mains and measuring circuits!

INFORMATION

The scope of delivery for the module includes the appropriate bus connector (JanBus interface) for connection to the basic device or further modules.

- In addition to the current measuring module, also observe the usage information of your basic device and the LP current transformers! Do not extend the connecting leads of the LP current transformers at the current measurement inputs of the device/module! Extended measuring leads can affect the measuring result!

WARNING

Disregarding the installation instructions may cause property damage or personal injury! Disregarding of the installation instructions may cause damage to your basic device with the module or destroy it and/or may also result in personal injury! Only operate the UMG 801 basic device belonging to the 800-CT8-LP module with a supply voltage of 24 V! Observe the technical specifications in the usage information of your basic device.

INFORMATION

System limits

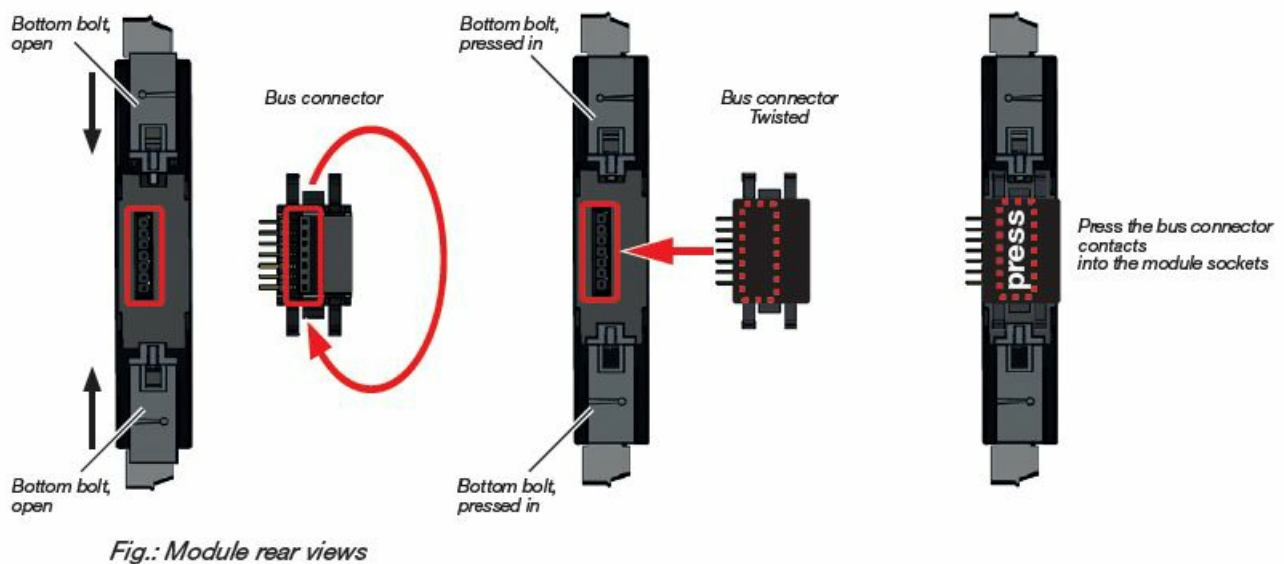
- The maximum bus length (JanBus) for the setup of the measurement device and module topologies can be found in the “Technical data”.
- If necessary, observe the installation manual for transfer modules when setting up decentralized measuring concepts.
- Before mounting, please check the number of suitable modules for your measurement device and module topology based on the respective usage information.

For the scope of delivery of the 800-CT8-LP module, refer to the user manual for the module. More information on certain functions of the basic device with modules can be found in the usage information of the basic device.

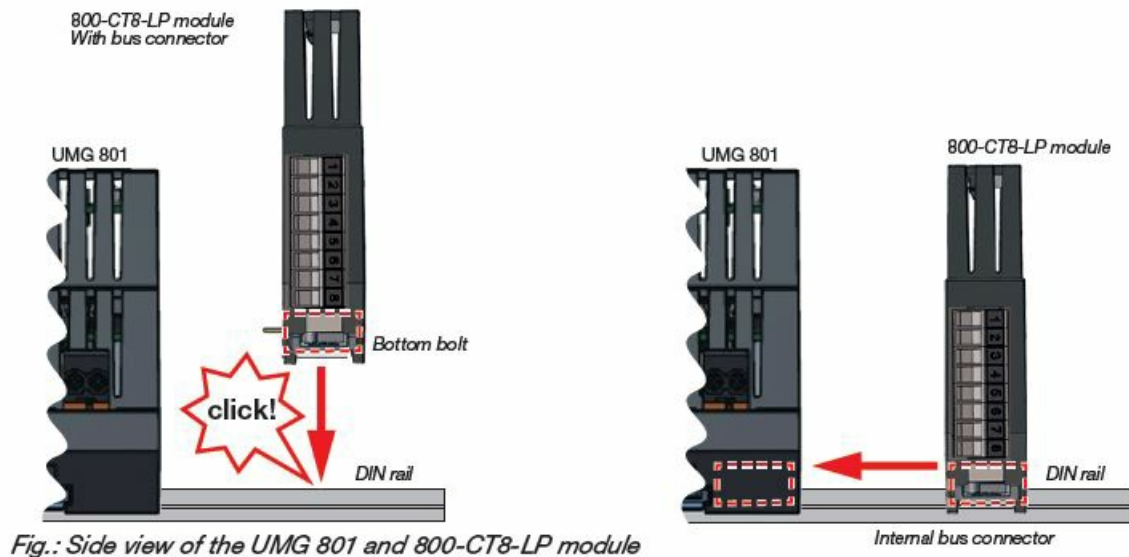
WARNING

- Disregarding the installation instructions may cause property damage or personal injury!
- Non-observance of the installation instructions may cause damage to your basic device with the module or destroy it and/or may also result in personal injury.
- In addition to the installation instructions for your module, also observe the installation instructions for your basic device, in particular the safety information and warning notices.
- Before installing modules
- Disconnect the supply of power to the system!
- Secure it against being switched on!
- Check to be sure it is de-energized!
- Ground and short circuit!
- Cover or block off adjacent live parts!
- Provide adequate air circulation in your installation environment and cooling, as needed, when the ambient temperatures are high.
- Return defective modules to Janitza Electronics GmbH in accordance with the shipping instructions for air or road freight (complete with accessories).
- All usage information is also available as a download at www.janitza.com.

Observe the installation instructions for your basic device (e.g. check bus connector installation!) and mount the 800-CT8-A module with the system de-energized as follows:

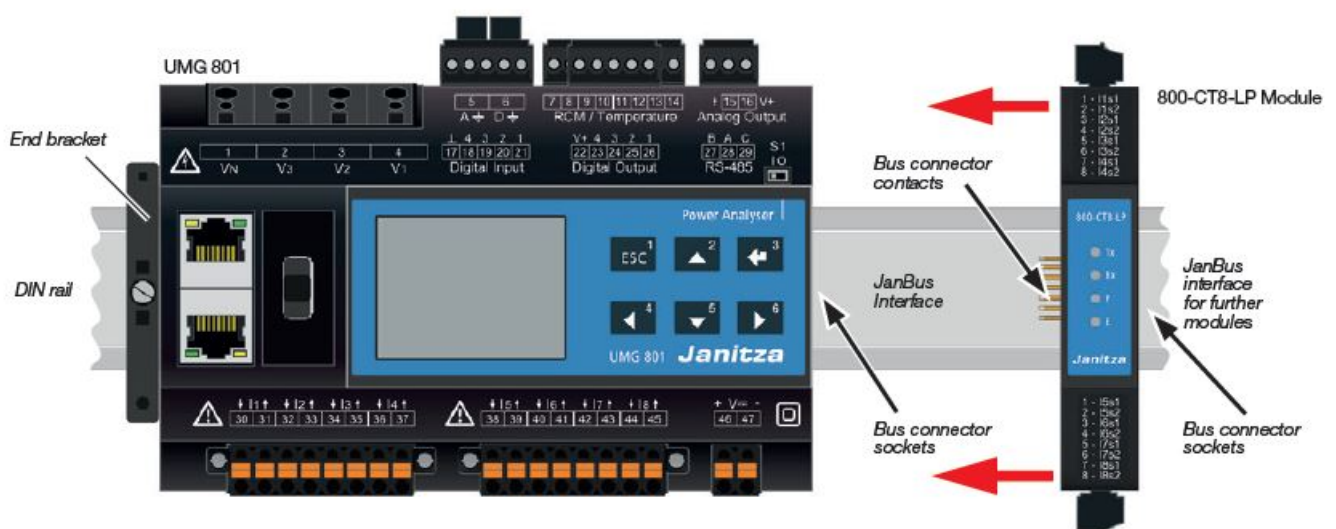


1. Press in the open bottom bolts on the rear of the module.
2. If this has not yet been done, press the bus connector (JanBus interface) included in the scope of delivery into the sockets on the rear of your module.
3. Press your module with the bus connector onto the DIN rail (for suitable DIN rail types, see "Technical data") until the bottom bolts engage (click).
4. Push the contacts of your module bus connector into the sockets of the basic device bus connector (or into the sockets of the attached module) so that the bus connectors (devices) are coupled.



INFORMATION

Before coupling the module, check to be certain your basic device is de-energized! Coupling while energized can destroy your basic device or module! The basic device automatically recognizes the module during the power-up procedure!



- After successfully coupling the bus connectors (devices), wire your module and apply voltage to the basic device (your system).

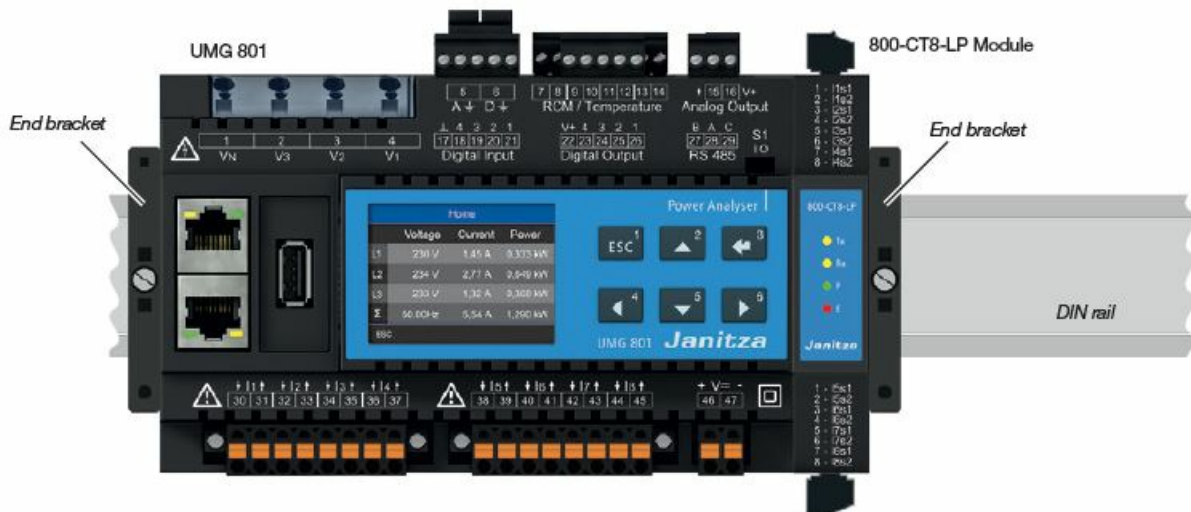


Fig.: Front view of the UMG 801 with coupled 800-CT8-LP module

INFORMATION

- The figure shows a mounting example of the 800-CT8-LP module.
- The basic device allows the installation of up to 10 modules of the type 800-CT8-LP.
- Always start and end the installation of your measurement device and module series on the DIN rail with end brackets!

ATTENTION

- Improper handling or handling them too roughly can destroy your devices, modules, and bus connectors! Contacts, bottom bolts, and retaining brackets can be damaged or broken off during mounting/ dismounting.
- Never touch or manipulate contacts!
- Protect contacts during handling, transport, and storage!
- Never use force to mount/dismount devices/ modules/bus connectors! Never force bus connector contacts into the bus connector sockets!

INFORMATION

- Please note the following for the setup and dimensioning of your measurement and module topology:
- The UMG 801 basic device has 2x4 current measuring channels and allows current measurement in the mA range via the multifunction channels (only with suitable current transformers).
- 1 module of the type 800-CT8-LP has 8 current measuring channels with current measurements exclusively via low-power current transformers 0 – 400 mV.
- Use end brackets to set up your measurement device and module series on the DIN rails.

Communication

After installing your module, check the function of the communication between the basic device and the module using the display on the basic device as follows:

- When you are in the Home measuring display of the basic device, pressing the button 1 ESC takes you to the Menu window. Use buttons 2 (▲) and 5 (▼) to select the menu item System information and confirm with button 3 Enter.
- The System information window with the items Basic Device and Module 1 appears.

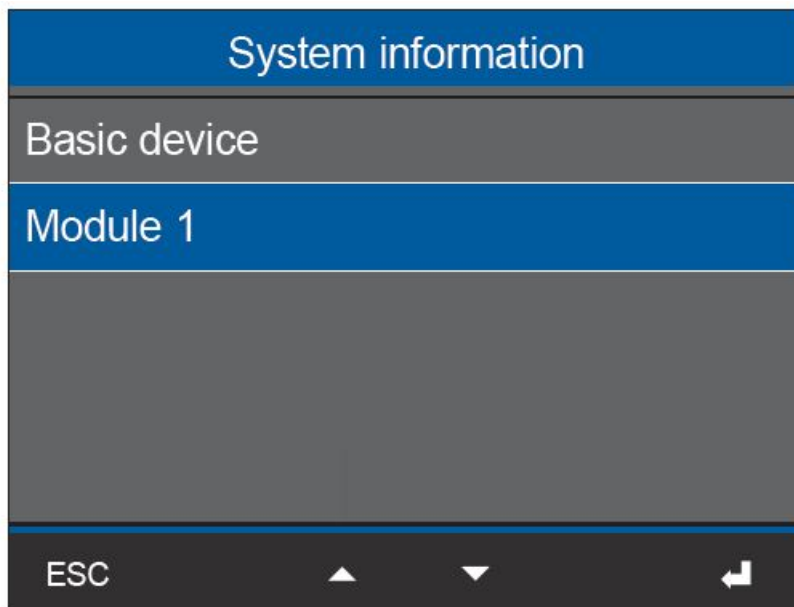


Fig.: System information window with the items "Basic device" and "Module 1".

ATTENTION

The basic device does not recognize the module during the power-up procedure! If there is no communication to the module, the module functions are not supported (e.g. current measurements).

- Disconnect your system from the power supply and check the situation of the bus connectors and the connection of your module to the basic device (JanBus interface).
- If necessary, push the contacts of the module bus connector into the sockets of the basic device bus connector (or the attached modules) so that the bus connectors (devices) are coupled.
- If necessary, restart the basic device.
- If these measures do not lead to the desired result, please contact our Support: www.janitza.com.

The basic device has detected module 1.

Current measurement

The 800-CT8-LP module

- Measures current exclusively via low-power current transformers.
- Allows the connection of LP current transformers with a secondary voltage of 0 .. 400 mV.
- Does not measure DC currents.

INFORMATION

- You can configure the LP current transformer ratios via the user interface of the UMG 801 basic device.
- Recommendation: Configure the LP current transformer ratios in a self-explanatory way in the “Device configuration” function of the Gravis® software.

WARNING

- Risk of injury due to high currents and high electrical voltages!
- Severe bodily injury or death can result from Touching bare or stripped leads that are energized.
- Inputs of devices, components, and modules are dangerous to touch. Therefore, please note for your system:
- Disconnect the supply of power before starting work! Secure it against being switched on!
- Check to be sure it is de-energized!
- Ground and short circuit! Use the ground connection points with the ground symbol for grounding! Cover or block off adjacent live parts!

ATTENTION

Incorrectly dimensioned or connected current transformers can cause material damage!

- Reversed current transformer terminals (“K” and “I”) or incorrectly dimensioned current transformers can lead to incorrect measurement results and/or incorrect control performance!
- When connecting a current transformer, it is essential to observe the markings on the transformer!
- The polarity of the current transformers and thus the “energy flow direction” runs from “K” to “I”! The polarity of the current transformers may differ depending on the model!
- Also, observe the technical connection requirements and the markings on the rating plate of your current transformers.

Connection example

Current measurement and terminal assignment of the 800-CT8-LP module

The figure shows a connection example for e.g. current measurement via LP current transformer on 4 of 8 LP current measuring channels (low power) of the 800-CT8-LP module.

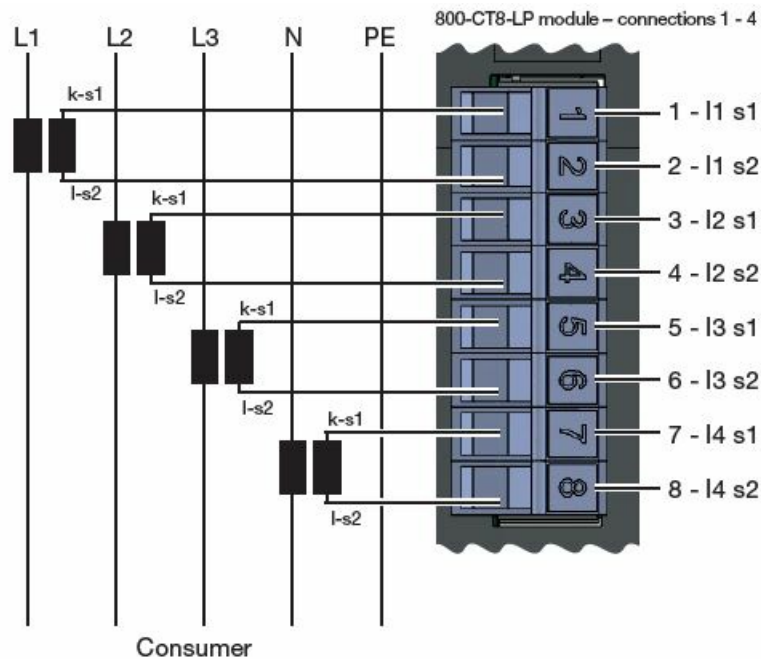
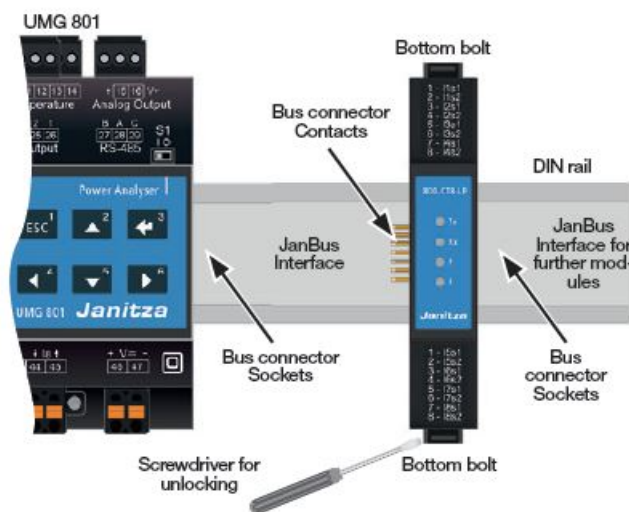


Fig.: Connection example – current measurement via LP current transformer (secondary rated voltage – see technical data).

Dismounting

Dismounting the module

1. Disconnect the supply of power to the system! Secure it against being switched on! Check to be sure it is de-energized! Ground and short circuit! Cover or block off adjacent live parts!
2. Disconnect the wiring of your module.
3. Decouple the bus connectors (Janus interface) of your module from the basic device and/or the connected modules by pulling out your module.
4. Unlock all bottom bolts of your module Recommendation: Use a screwdriver (be careful!).
5. Remove your module from the DIN rail without touching or damaging the bus connector contacts.



ATTENTION

- Handling your module too roughly may cause damage to the module and result in material damage!

- The bus connector contacts and the bottom bolts can be damaged or broken off when dismantling your module.
- Never pull the module out of the DIN rail forcefully.
- First, decouple the bus connectors (JanBus interface) and carefully unlock the bottom bolts of the module with a screwdriver!

ATTENTION

Material damage due to disassembly or decoupling of the module during operation!

- Dismounting or decoupling the module during communication with the basic device can cause damage to your devices!
- Disconnect your system from the power supply prior to dismantling or disconnecting the module!
- Secure it against being switched back on!
- Check to be sure it is de-energized!
- Ground and short circuit!
- Cover or block off adjacent live parts!

Technical data

General	
Net weight (with plug-in terminals)	73 g (0.16 lb)
Device dimensions	W = 18 mm (0.71 in), H = 90 mm (3.54 in), D = 76 mm (2.99 in)
Mounting orientation	As desired
Fastening/mounting - Suitable DIN rails (35 mm)	<ul style="list-style-type: none"> • TS 35/7.5 according to EN 60715 • TS 35/10 • TS 35/15 x 1.5
Protection level	IP20 according to EN60529
Impact resistance	IK07 according to IEC 62262

Transport and storage	
The following specifications apply for devices transported and stored in the original packaging	
Free fall	1 m (39.37 in)
Temperature	K55 - -25 °C (-13 °F) to +70 °C (158 °F)
Relative humidity	0 to 95% at 25 °C (77 °F), no condensation

Environmental conditions during operation	
The device: <ul style="list-style-type: none"> • Is for weather-protected and stationary use. • Fulfills the operating conditions according to DIN IEC 60721-3-3. • Has protection class II according to IEC 60536 (VDE 0106, part 1), a ground wire connection is not required! 	
Working temperature	-10 °C (14 °F) .. +55 °C (131 °F)
Relative humidity in operation	5 to 95 % at 25 °C (77 °F), no condensation
Pollution degree	2
Ventilation	No forced ventilation required
Supply voltage	Through the UMG 801 basic device

Module 800-CT8-LP current measurement	
Measurement via low-power current transformers with a secondary voltage of	.. / 0 - 400 mV
Channels	8 (2x4) <ul style="list-style-type: none"> • 2 systems (L1, L2, L3, N) • Single channels
Input impedance per channel	230 kΩ
Nominal input signal of the module	0 ... 400 mV
Crest factor	1.8
Overload for 1 s	1 V
Resolution	16 bit
Sampling frequency	6.8 kHz
Frequency of the fundamental oscillation	40 Hz .. 70 Hz
Harmonics	1 .. 15 (odd only)

Interface and energy supply	
JanBus (proprietary)	<ul style="list-style-type: none"> • Via bus connector • Max. bus length (JanBus) 100 m
Supply voltage (via JanBus interface)	24 V

Connection capacity of the terminals – 800-CT8-LP module	
Connectible conductors Only connect one conductor per terminal point!	
Single core, multi-core, fine-stranded	0.2 - 1.5 mm ² , AWG 24-16
Wire ferrules (non-insulated)	0.2 - 1.5 mm ² , AWG 26-16
Wire ferrules (insulated)	0.2 - 1 mm ² , AWG 26-18
Wire ferrules: Length of the contact sleeve	7 mm (0.2756 in)
Tightening torque Screw flange	0.2 - 0.25 Nm (1.77 - 2.21 lbf in)

Module 800-CT8-LP LEDs	
Tx (send data)	Flash "orange" during operation and indicate cyclic data exchange.
Rx (receive data)	
P (power - power supply)	Lights up "green" when the power supply via the JanBus interface is correct.
E (error - initialization and malfunction)	Lights up "red" when initializing/starting the device and in the event of a fault.

INFORMATION

- Detailed technical data on the module can be found in the user manual.
- Technical data on the basic device and information on how to proceed in the event of a fault can be found in the usage information of your basic device.

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Documents / Resources



[Janitza 800-CT8-LP Current Measuring Module](#) [pdf] Installation Guide
800-CT8-LP Current Measuring Module, 800-CT8-LP, Current Measuring Module, Measuring Module, Module