ISIO 200 Quick Start Guide

Designated use

The *ISIO 200* is a binary I/O terminal to be used in protection and automation systems for electrical power utilities that use IEC 61850.

The *ISIO 200* may be either

- a portable accessory for testing protection and power utility automation systems,
- permanently installed as a test terminal,
- installed to perform operational functions in protection and power utility automation systems.

Safety instructions

Carefully read the *ISIO 200* user manual for safety-relevant information.

This symbol indicates special safety-relevant notes/directions linked to the possibility of touching live voltages and/or currents. Carefully read and follow these directions to avoid life-hazardous situations.

This symbol indicates potential hazards by electrical voltages/currents caused by, for example, wrong connections, short-circuits, technically inadequate or faulty equipment, or by disregarding the safety notes.

- Do not use any other power supply options for the *ISIO 200* than the ones described.
- Before wiring the terminals, verify that the conducting parts are de-energized. The terminal connectors have hazardous live parts.
- Product safety according to IEC 61010-1 is only achieved when operating the *ISIO 200* in a secured area with safety barrier and safety indicator, or in permanent/stationary setups.
- Do not operate the *ISIO 200* under wet or moist conditions (condensation).
- Do not operate the *ISIO 200* when explosive gas or vapors are present.
- If the *ISIO 200* is opened by unauthorized personnel, all guarantees are invalidated.
- Connect the ETH connector only to Ethernet ports.
- If the *ISIO 200* seems to be functioning improperly, please contact the OMICRON Technical Support.

Connectors

The binary I/O terminals may be connected to hazardous voltages and do not protect the user from electric shocks. The connector itself may become a live part with hazardous voltages. Carry out the wiring of the I/O terminals in de-energized condition, only.

The connectors are safe according to IEC 61984 and IEC 60999-1. They are required for the use in substation automation systems according to IEC 60255-27. Note that a secured operating environment is necessary.

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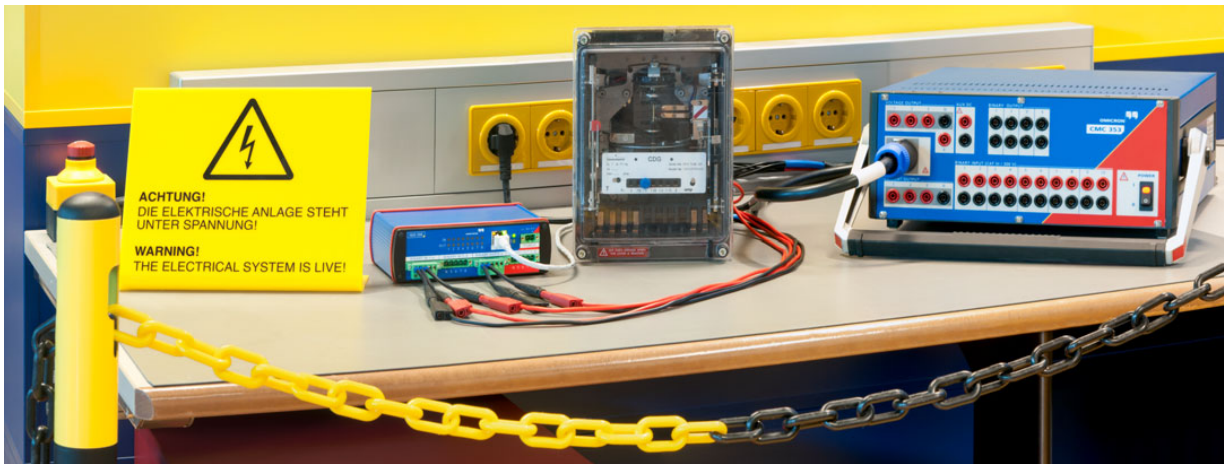
Mounting

Permanently installed: DIN rail mounting or wall mount

A DIN rail mounting clip or mounting brackets are included in the delivery package for operating the *ISIO 200* permanently installed in a control cabinet.

Tabletop use

If the device is used outside such an enclosure, e.g. on a laboratory desk, additional protection using safety barriers and safety indicators must be established. Carry out the wiring of the I/O terminals in de-energized condition, only.



Product safety according to IEC 61010-1 is only achieved by operating the *ISIO 200* in a secured area with safety barrier and safety indicator. Note that a secured operating environment is necessary.

Powering-up the ISIO 200

The *ISIO 200* offers two possibilities for supplying the device with electrical power.

Power over Ethernet (ETH)

The easiest and preferred method for supplying the *ISIO 200* is by Power over Ethernet (PoE) according to IEEE 802.3af. The insulation concept is designed for that. The same Ethernet cable is used for communication and for supplying power; no additional cabling is required.

Power input (POWER)

Alternatively, you can supply power to the *ISIO 200* by an external DC supply. The *ISIO 200* works with a DC input voltage of 18 V to 57 V. The power consumption of the device is below 5 W.

The safety requirements according to IEC 61010-1 and IEC 60255-27 are only complied with using a DC supply unit that provides SELV (safety extra low voltage) according to IEC 61140.

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Communication and access

OMICRON Device Browser

By means of the OMICRON *Device Browser* (ODB) you access network-compatible OMICRON devices on a local network even if the IP address of the device is not known yet. When an *ISIO 200* is found and listed by the ODB, further functions can be applied. Two functions of particular interest are:

- Setting a static IP address for the *ISIO 200.*
- Invoking the web interface of the *ISIO 200.*

1. **Installing OMICRON Device Browser (ODB)**
   - Go to the *ISIO 200* product page on our website (www.omicron.at).
   - Download the ODB and install it.
2. **Finding OMICRON devices with the ODB manually (OMFIND)**
   - Right-click the **OMICRON Devices** desktop icon.
   - Click **OMFind**, then click **Find Devices...**
   - Click the **Start Discovery** button to manually search OMICRON devices connected to the network.
   - Click the **ODB** icon to open the browser, presenting a list of found OMICRON devices.
3. **Setting an IP address with the ODB**
   - Right-click the *ISIO 200* device symbol.
   - Click **Set Network Configuration...**
   - Enter the IP settings, then click **OK** to apply them.
4. **Accessing the web interface from the ODB**
   - Right-click the *ISIO 200* device symbol
   - Click **Open Web Interface**
   - Login: The default password at delivery is printed on the nameplate on the bottom of the *ISIO 200*.

Configuration

Matched pair

If a "matched pair of *ISIO 200*" has been ordered, the devices are pre-configured at the factory to communicate with each other "out-of-the-box". No further configuration is needed. When two paired devices (the peers) are connected to the same network (to the same broadcast domain), they will immediately exchange their binary I/O status. The information detected at the inputs of one device will be issued at the outputs of the peer device.

Operation mode

The *ISIO 200* has different operation modes to support multiple applications. The following modes can be chosen in the *ISIO 200* web interface:

- Pairing

  Pair two *ISIO 200* together easily by entering the IED name of each peer.

- Select Models

  The *ISIO 200* maps the binary I/O states into selectable IEC 61850 data models for different applications.

- GOOSE Only

  To use GOOSE Only mode, you need to upload a *Test Universe* GOOSE Configuration XML file to the *ISIO 200*.

- Web Control

  Web Control mode can be used to quickly change the binary output states over the web interface of the *ISIO 200*.

For further information about the available operation modes, refer to the *ISIO 200* User Manual.

Technical data

Binary Inputs: BINARY IN 1-4 / BINARY IN 5-8	
Number of binary inputs	8 (2 reinforced insulated binary input groups)
Maximum input voltage	CAT II / 250 V (rms) according to IEC 61010-2-030
Threshold voltage	18 V default; configurable via Web Interface
Timing	Binary input activation → published GOOSE: 850 µs (typical)
Insulation	Reinforced insulation from all SELV interfaces, power supply and all binary potential groups
Binary Outputs: BINARY OUT 1-4 / BINARY OUT 5-8	
Number of binary outputs	8 (2 reinforced insulated binary output groups)
Voltage	250 V
Maximum current	8 A (max. 2000 VA or 50 W)
Timing	Received GOOSE → binary output contact closing: 5.5 ms (typical)
Insulation	Reinforced insulation from all SELV interfaces, power supply and all binary potential groups
Power Supply	
Power over Ethernet (PoE): ETH	
PoE class	Class 2 powered device according to IEEE 802.3af
External DC Power Input: POWER	
Nominal DC input voltage	18 V ... 57 V
Power consumption	< 5 W
Insulation	Product safety according to IEC 61010-1 and IEC 60255-27 only achieved by using an external power supply unit that complies with the SELV standard
Environmental Conditions	
Operating temperature	-20 ... +55 °C / +70 °C for 96 h (-4 ... +131 °F / +158 °F for 96 h)
Storage and transportation	-40 ... +85 °C (-40 ... +185 °F)
Maximum altitude	2000 m (6500 feet)
Humidity	5 % ... 95 % relative humidity; non-condensing
Insulation Coordination	
Protection class	Class II (double insulated)
Overvoltage category	II according to IEC 61010-1, III according to IEC 60255-27
Pollution degree	II
Mechanical data	
Weight	800 g (1.8 lbs)
Dimensions W x H x D	170 mm x 50 mm x 125 mm (6.7 in x 2 in x 4.9 in)
Ingress Protection rating	IP40 according to IEC 60529
Safety	
Standard	IEC 61010-1; IEC 60255-27; IEC 60950-1 (Insulation of ETH and SELV interfaces)
Conformity	
The product adheres to the specifications of the guidelines of the council of the European Community for meeting the requirements of the member states regarding the electromagnetic compatibility (EMC) Directive 2004/108/EC and the low voltage Directive 2006/95/EC.	

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