ISIO 200

Binary Input/Output (I/O) Terminal with IEC 61850 Interface

Compact and easy – ISIO 200

Put your binary I/Os where you need them

ISIO 200 is a simple and versatile binary I/O terminal with IEC 61850 interface. For communicating with CMC test sets and real-time message exchange with peer devices, the fast GOOSE messaging is used. By using Client/Server communication, ISIO 200 can be integrated into Substation Automation Systems (SAS) and communicate to a station controller.

In combination with a CMC test set, ISIO 200 extends the binary I/O capability of the test system. As a component of an SAS, it handles additional binary signals. Due to its compact design, binary I/O terminals can be put wherever necessary.

ISIO 200 is configured via a built-in web interface and needs no special configuration software to be installed on your computer. Configuration files can be exported from the device in the standardized SCL format.

To simplify handling and minimize wiring efforts, ISIO 200 is supplied with Power over Ethernet (PoE). No dedicated power supply is required.

Binary I/O status LEDs

8 binary inputs

Fields of application

The ISIO 200 serves multiple applications in substation automation systems.

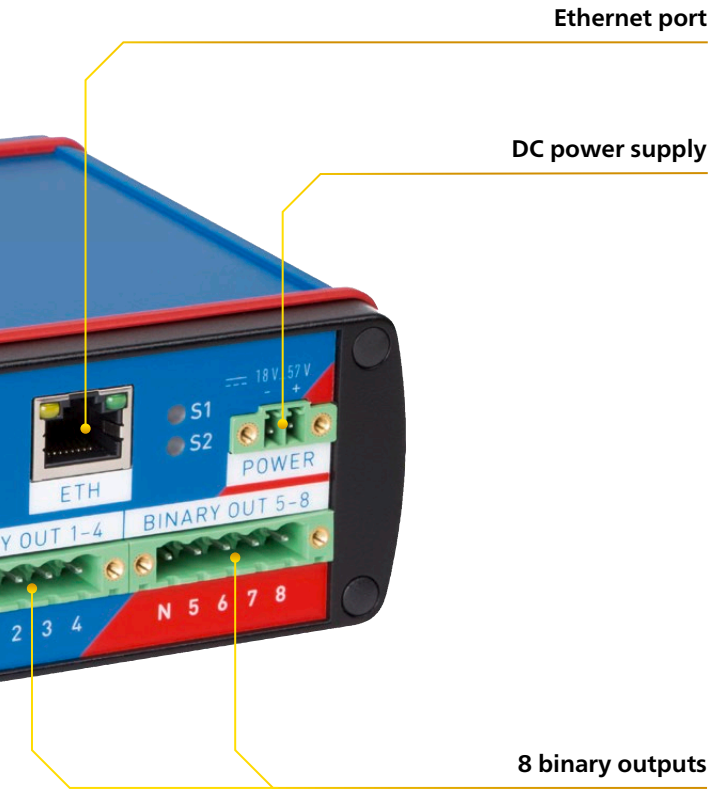
Depending on whether the device is used for testing purposes (often together with a CMC test set) or in regular SAS operation, they are divided in two categories:

Testing in Substation Automation Systems with CMC test sets

- Testing sophisticated protection schemes
- Access to remote binary I/O terminals
- Permanently installed terminal for testing

Operating ISIO 200 in Substation Automation Systems

- Interface for conventional equipment to IEC 61850
- I/O terminal for SAS utilizing GOOSE
- Back-to-back binary I/O forwarding via Ethernet



Your benefits

- Testing of complex protection schemes with CMC test sets
- Remote control of binary outputs
- Indication of GOOSE timeouts and malfunctions using alarm output contact
- Integration of conventional devices into IEC 61850 systems
- Status interface with data models for overcurrent relays, switchgear, and teleprotection

www.omicronenergy.com/ISIO200

Fields of application

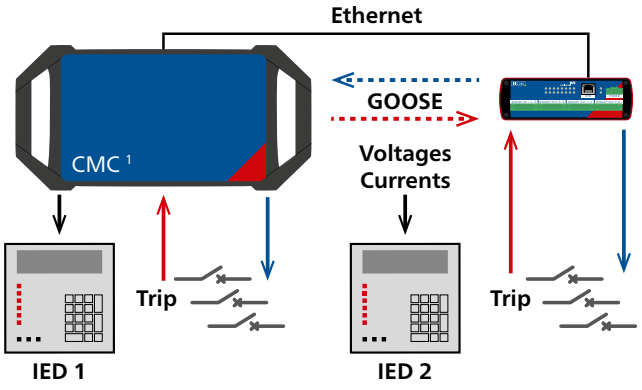
Testing in Substation Automation Systems with CMC test sets

Test setups in SAS often require bridging of long distances or an extension of the CMC's binary I/O capabilities.

The ISIO 200 can be used as accessory for the CMC to increase the number of binary I/Os of the test system. The accessory can be configured easily using the Test Universe ISIO Connect module.[1] The CMC and ISIO 200 communicate via GOOSE messages. This allows distances to be bridged up to dozens of meters with an Ethernet cable.

1 Testing sophisticated protection schemes

When testing protection schemes with main and backup protection and telecommunication, the setup can easily get so complex that more than 10 binary inputs and 4 binary outputs are required. In such cases, the ISIO 200 is the ideal extension of the CMC's binary I/O capabilities.



2 Access to remote binary I/O terminals

Connecting to binary I/Os that are more than just a few meters away from the test set is often cumbersome.

The ISIO 200 can be conveniently placed close to remote access points to keep the conventional wiring as short as possible. The longer distance to the test set is simply bridged with an Ethernet cable.

3 Permanently installed test terminal

The binary I/Os of a protection relay are permanently wired to an ISIO 200. For testing, the binary wiring of the test set is reduced to connecting the Ethernet cable. The ISIO 200 becomes powered as soon as it is connected to the CMC.

[1] For Test Universe versions prior to 3.10 the GOOSE Configuration module is required

Operating ISIO 200 in Substation Automation Systems

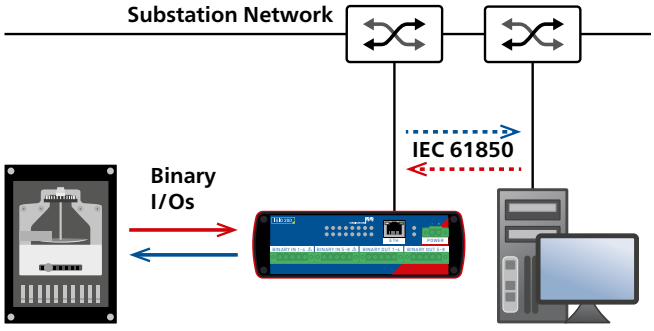
Use the device to simply add binary I/Os in your SAS or for forwarding binary I/Os over Ethernet by connecting two ISIO 200 units back-to-back.

ISIO 200 communicates via the fast and robust IEC 61850 GOOSE protocol and, therefore, interoperates with a wide range of substation automation devices.

1 Interface for conventional equipment to IEC 61850

Often binary I/O status information of conventional equipment needs to be communicated to a station controller or SCADA system.

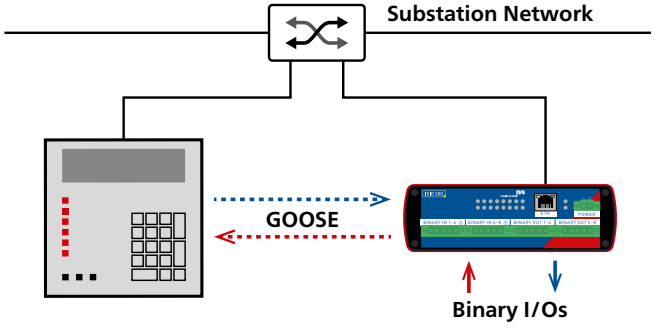
For this application the ISIO 200 provides different data models for integrating conventional equipment, such as overcurrent relays, circuit breakers, or disconnector switches into IEC 61850 automation systems.



2 I/O extension for SAS using GOOSE

The frequent need for a few additional binary I/Os in a SAS is easily and efficiently facilitated with the ISIO 200.

If the I/O capabilities of an IED are exhausted but more binary I/Os are still needed, an ISIO 200 “connected” via GOOSE delivers this.

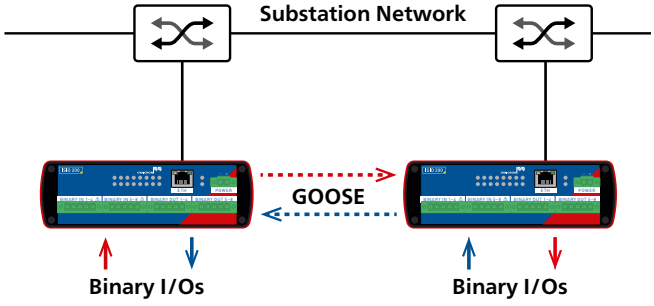


3 Back-to-back binary I/O forwarding via ethernet

By using two ISIO 200 “back-to-back”, binary status information is tunneled over the substation network.

If ordered in matched pairs, the two ISIO 200s are pre-configured to subscribe to each other. This configuration works out of the box.

A configurable alarm output contact indicates GOOSE timeouts and malfunctions.



Configuration

Configuration via web interface

The ISIO 200 is configured via a web interface. No special configuration software needs to be installed on a computer.

The web interface supports mobile devices with small screens and provides diagnostic information to help find errors in the configuration.

Usage as accessory for CMC test sets

To set up a CMC test set to interface with an ISIO 200, the ISIO Connect module included in Test Universe version 3.10 and later can be used.

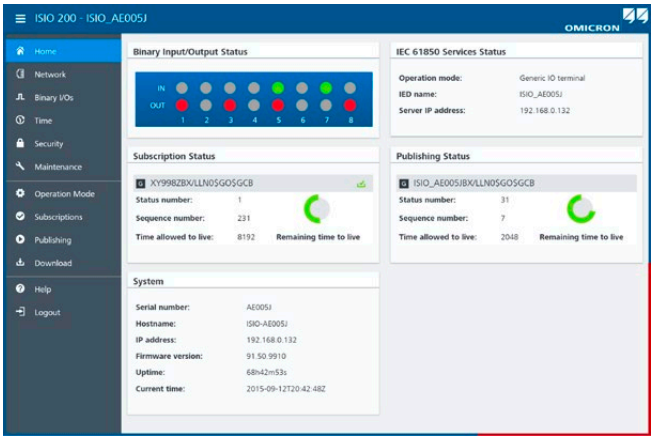
ISIO 200 also allows to directly download settings that can be imported into the Test Universe GOOSE configuration module.

Custom GOOSE configuration

Sophisticated GOOSE configurations are set up with the Test Universe GOOSE Configuration module, which is normally used for CMC test sets. Such custom configurations can easily be loaded into the ISIO 200.

Export Substation Configuration Language (SCL)

For use in the IEC 61850 engineering process, the description of the ISIO 200 can be downloaded from the device in SCL Edition 1 and Edition 2 format.



Easy configuration via web interface

Mounting options

Tabletop use

Rubber sealing around the housing guarantees a soft and secure stand when using the ISIO 200 as a tabletop device.

DIN rail mounting

For permanent installation in substations, the device can be mounted on a DIN rail. The mounting clip at the back makes it easy to fit the ISIO 200 into a variety of cabinet designs (mounting set included in the delivery).

ISIO 200 mounted on DIN rail

Flat surface mounting

Mounting brackets allow the ISIO 200 to be permanently attached to any flat surface (mounting brackets are included in the delivery).

Technical specifications

Binary Inputs: BINARY IN 1-4 / BINARY IN 5-8

Binary inputs	8 (2 potential groups)
Max. input voltage	CAT II / 250 V (rms) (IEC 61010-2-030)
Threshold voltage	18 V default; configurable via web interface
Timing	Binary input activation → published GOOSE: 850 µs (typical)

Binary outputs: BINARY OUT 1-4 / BINARY OUT 5-8

Binary outputs	8 (2 potential groups)
Voltage	250 V
Max. current	8 A (max. 2000 VA or 50 W)
Timing	Received GOOSE → binary output contact closing: 5.5 ms (typical)

Power supply: ETH (PoE) or POWER

Power over ethernet (PoE): ETH

PoE class	Class 2 powered device (IEEE 802.3af)

External DC power input: POWER

Input voltage	18 V ... 57 V
Power consumption	< 5 W

Environmental conditions

Ambient temperature	-20 °C ... +55 °C (+70 °C for 96 h) -4 °F ... +131 °F (+158 °F for 96 h)
Humidity	5 % ... 95 % rel. 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	2

Mechanics

Weight	800 g (1.8 lbs)
Dimensions (W x H x D)	170 mm x 50 mm x 125 mm 6.7 in x 2.0 in x 4.9 in
IP rating	IP40 (IEC 60529)

Safety

Standard	IEC 61010-1; IEC 60255-27; IEC 60950-1 (Insulation of ETH and SELV)

Ordering information

Description	Order no.
ISIO 200 (single unit)	P0006498
ISIO 200 matched pair (2 preconfigured devices)	P0006499

We create customer value through ...

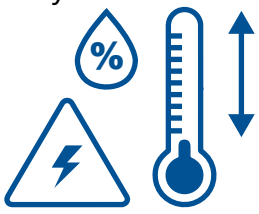
Quality

We always want you to be able to rely on our testing solutions. This is why our products have been developed with experience, passion and care and are continually setting ground-breaking standards in our industry sector.

You can rely on the highest safety and security standards

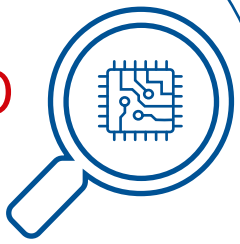
Superior reliability with up to

72



hours burn-in tests before delivery

100%



routine testing for all test set components

ISO 9001
TÜV & EMAS
ISO 14001
OHSAS 18001

Compliance with international standards

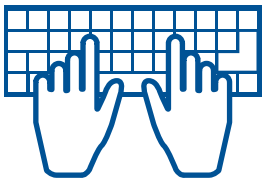
Innovation

Thinking and acting innovatively is something that's deeply rooted in our genes. Our comprehensive product care concept also guarantees that your investment will pay off in the long run – e.g. with free software updates.

... a product portfolio tailored to my needs

More than

200



developers keep our solutions up-to-date

More than

15%

of our annual sales is reinvested in research and development

Save up to

80%

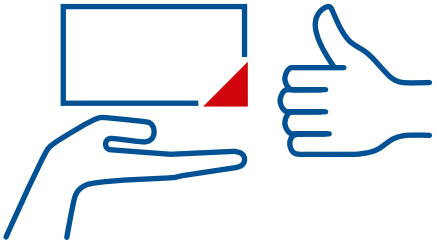
testing time through templates, and automation

We create customer value through ...

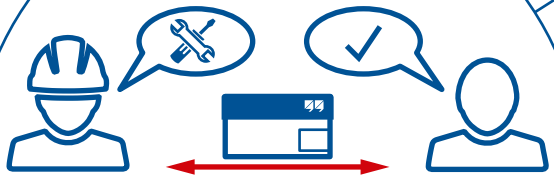
Support

When rapid assistance is required, we're always right at your side. Our highly-qualified technicians are always reachable. Furthermore, we help you minimize downtimes by lending you testing equipment from one of our service centers.

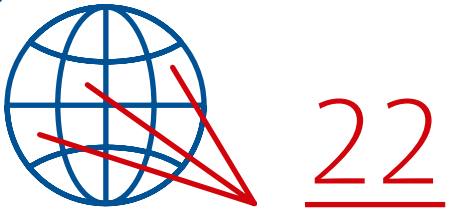
Professional technical support at any time



Loaner devices help to reduce downtime



Cost-effective and straight-forward repair and calibration



offices worldwide for local contact and support

Knowledge

We maintain a continuous dialogue with users and experts. Customers can benefit from our expertise with free access to application notes and professional articles. Additionally, the OMICRON Academy offers a wide spectrum of training courses and webinars.

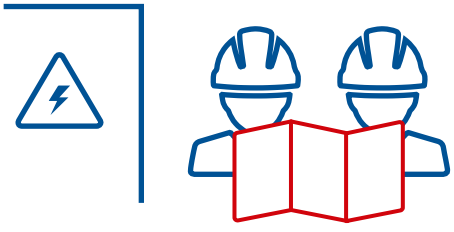
More than

300

Academy and numerous hands-on trainings per year

Frequently OMICRON hosted user meetings, seminars and conferences

to thousands of technical papers and application notes



Extensive expertise in consulting, testing and diagnostics

OMICRON is an international company that works passionately on ideas for making electric power systems safe and reliable. Our pioneering solutions are designed to meet our industry's current and future challenges. We always go the extra mile to empower our customers: we react to their needs, provide extraordinary local support, and share our expertise.

Within the OMICRON group, we research and develop innovative technologies for all fields in electric power systems. When it comes to electrical testing for medium- and high-voltage equipment, protection testing, digital substation testing solutions, and cybersecurity solutions, customers all over the world trust in the accuracy, speed, and quality of our user-friendly solutions.

Founded in 1984, OMICRON draws on their decades of profound expertise in the field of electric power engineering. A dedicated team of more than 1250 employees provides solutions with 24/7 support at 22 locations worldwide and serves customers in more than 170 countries.

For more information, additional literature, and detailed contact information of our worldwide offices please visit our website.

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