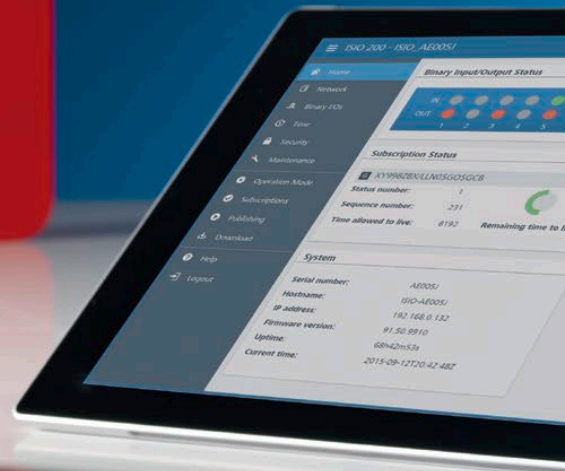


ISIO 200

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.

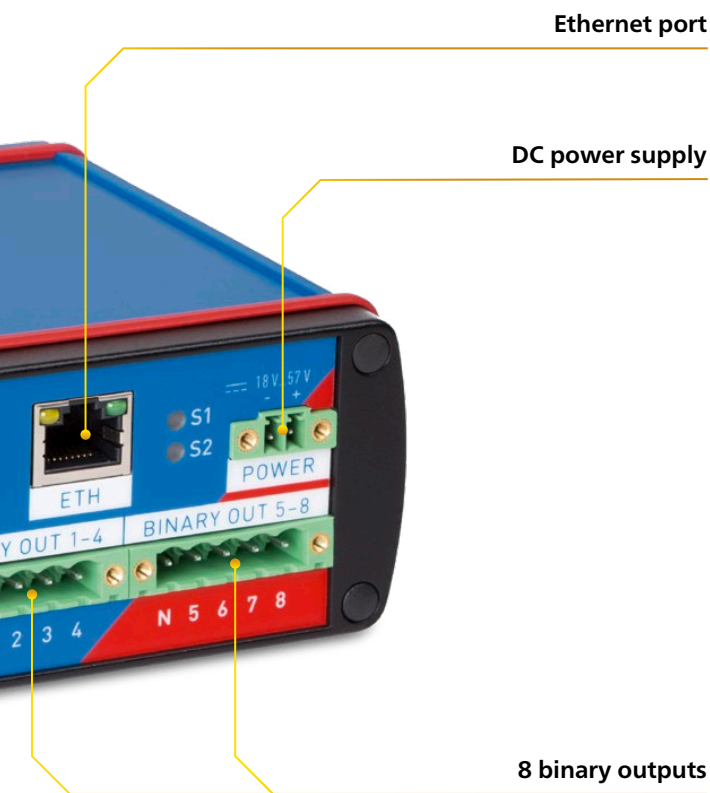
Depending on whether the device is used for testing purposes (often together with a CMC test set) or in regular SAS operation, they are divided in two categories:

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

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Fields of application

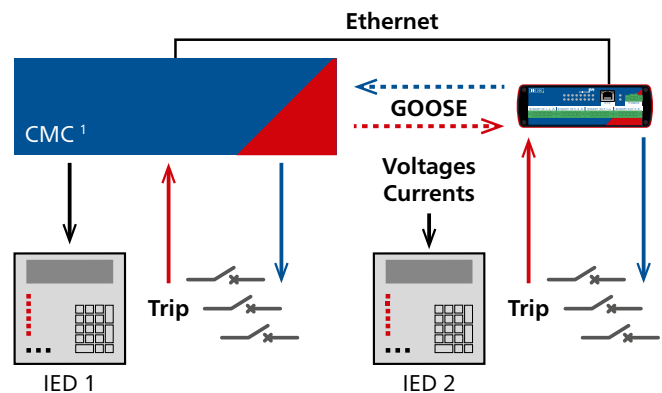
Testing in Substation Automation Systems with CMC test sets

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

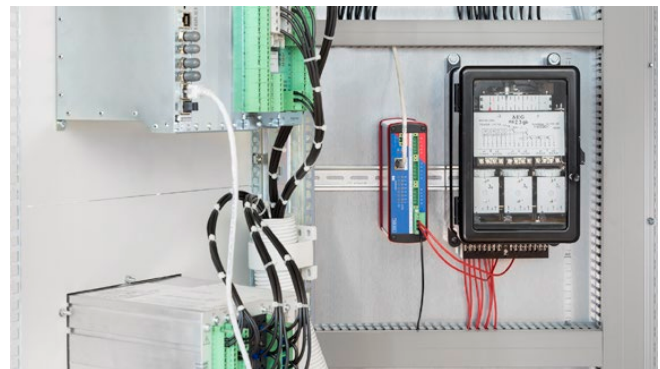
Connecting to binary I/Os that are more than just a few meters away from the test set is often cumbersome.

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

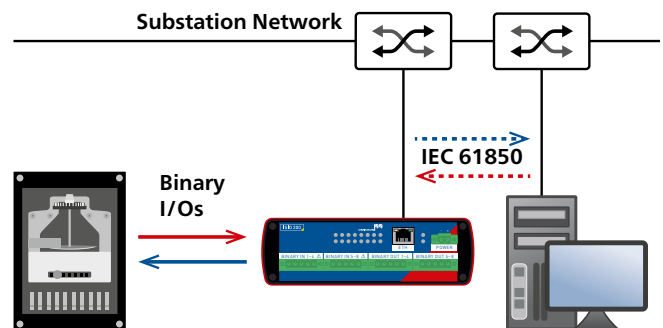
Use the device to simply add binary I/Os in your SAS or for forwarding binary I/Os over Ethernet by connecting two ISIO 200 units back-to-back.

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.

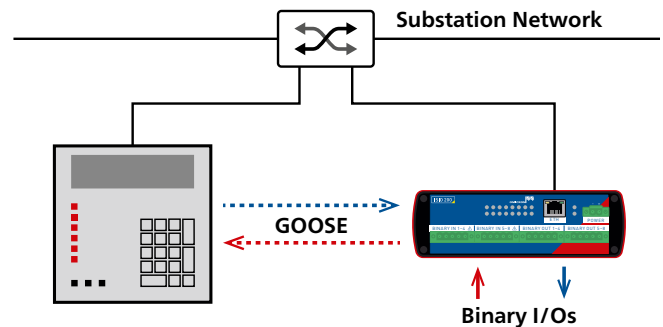
For this application the ISIO 200 provides different data models for integrating conventional equipment, such as overcurrent relays, circuit breakers or disconnector switches into IEC 61850 automation systems.



2 I/O extension for SAS using GOOSE

The frequent need for a few additional binary I/Os in a substation automation system 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.

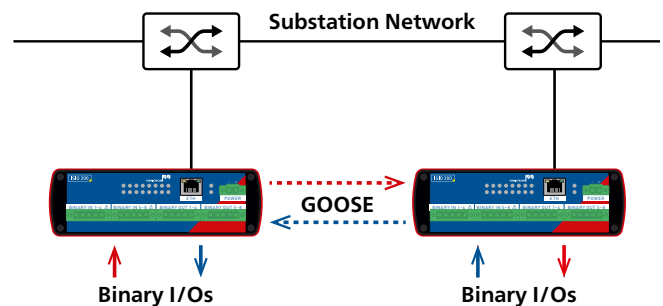


3 Back-to-back binary I/O forwarding via ethernet

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.



ISIO 200

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.

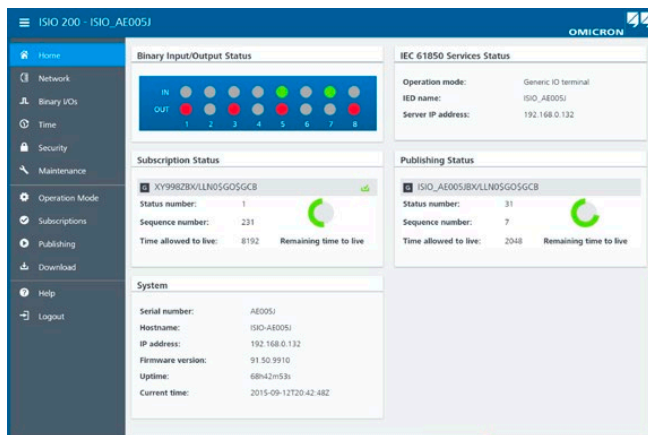
ISIO 200 also allows to directly download settings that can be imported into the Test Universe GOOSE configuration module.

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)
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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)
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Safety

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

Description	Order no.
ISIO 200 (single unit)	VESC1600
ISIO 200 matched pair (2 preconfigured devices)	VESC1601



OMICRON is an international company serving the electrical power industry with innovative testing and diagnostic solutions. The application of OMICRON products allows users to assess the condition of the primary and secondary equipment on their systems with complete confidence. Services offered in the area of consulting, commissioning, testing, diagnosis and training make the product range complete.

Customers in more than 160 countries rely on the company's ability to supply leading-edge technology of excellent quality. Service centers on all continents provide a broad base of knowledge and extraordinary customer support. All of this together with our strong network of sales partners is what has made our company a market leader in the electrical power industry.

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