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OMICRON

ISIO 200

Binary Input/Output (I/O) Terminal with IEC 61850 GOOSE 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 for Substation Automation Systems (SAS). It communicates via IEC 61850 GOOSE messages and, therefore, interoperates with a wide range of intelligent electronic devices (IED) or CMC test sets supporting GOOSE.

Integrate ISIO 200 as a component in your SAS to handle additional binary signals or use it in combination with a CMC test set to extend its binary I/O capability. Due to its compact design, you can put additional binary I/O terminals wherever necessary.

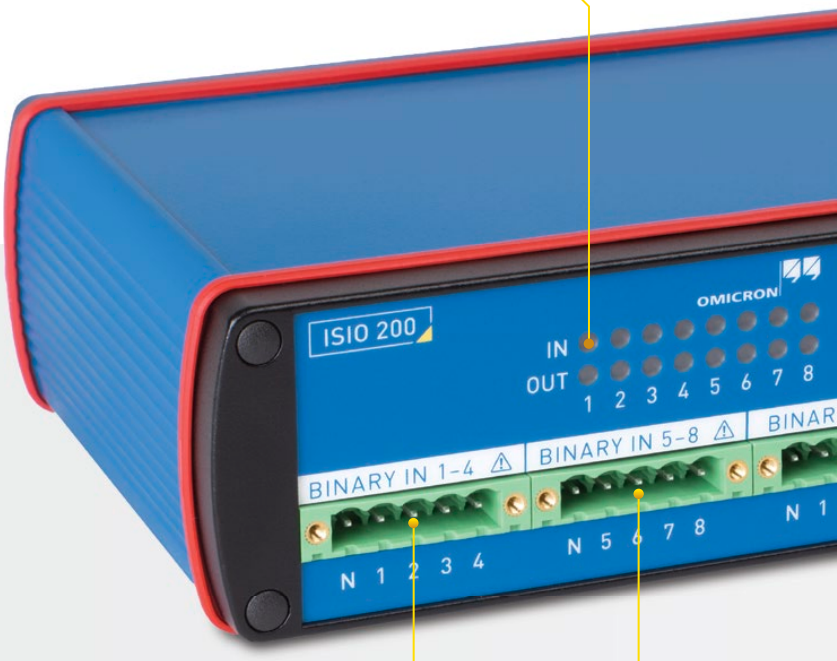
Easy configuration

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.

No dedicated power supply

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 in regular SAS operation or for testing purposes (often together with a CMC test set), they are divided in two categories:

Operating ISIO 200 in Substation Automation Systems

> I/O terminal for SAS utilizing GOOSE

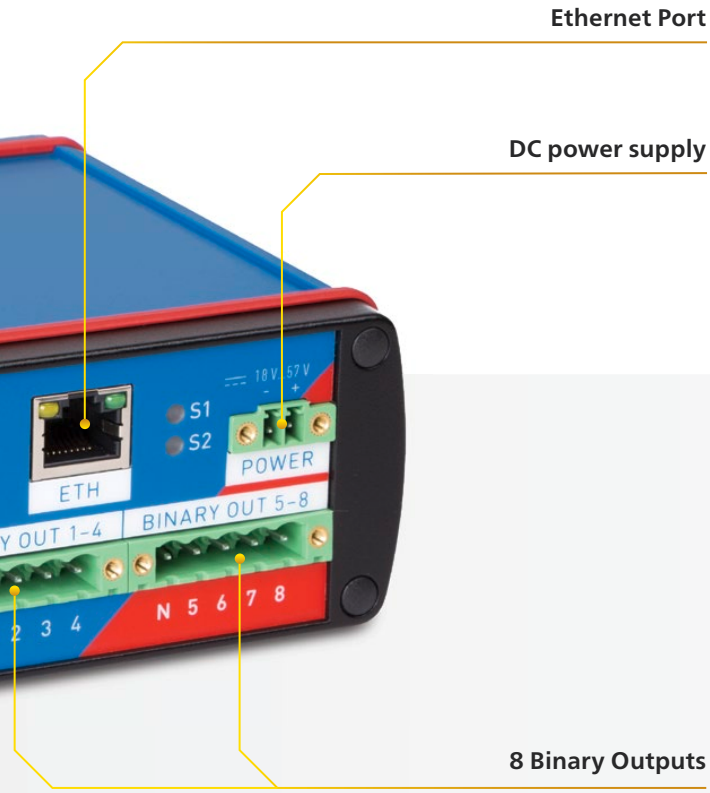
> Back-to-back binary I/O forwarding via Ethernet

Testing in Substation Automation Systems with CMC test sets

> Access to remote binary I/O terminals

> Testing sophisticated protection schemes

> Permanently installed terminal for testing



Your benefits

> Cost effective way to add binary I/Os to SAS

> Interoperability with a wide range of devices

> IEC 61850 GOOSE communication

> Simple configuration and IEC 61850 engineering support

> Capability to test complex systems with CMC test sets

Fields of Application

Operating ISIO 200 in Substation Automation Systems

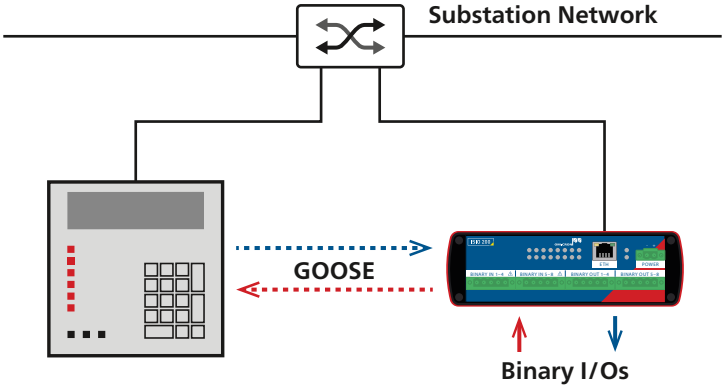
Use the device to simply add binary I/Os in your SAS utilizing GOOSE or for forwarding binary I/Os over Ethernet by connecting two ISIO 200 units back-to-back.

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

1 I/O extension for SAS utilizing 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.

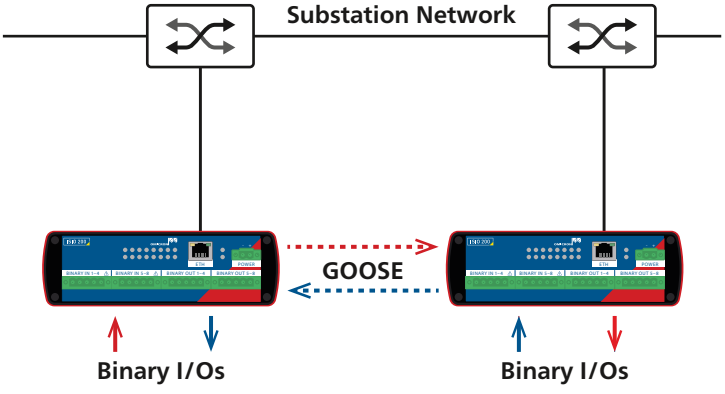
If the I/O capabilities of an IED are exhausted but more binary I/Os are still needed, an ISIO 200 “connected” via GOOSE delivers this.



2 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 preconfigured to subscribe to each other. This configuration works out of the box.



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.

CMC test sets with IEC 61850 functionality [1] and the ISIO 200 communicate via GOOSE messages. This allows distances to be bridged up to dozens of meters with an Ethernet cable and simultaneously increases the number of binary I/Os on the test system.

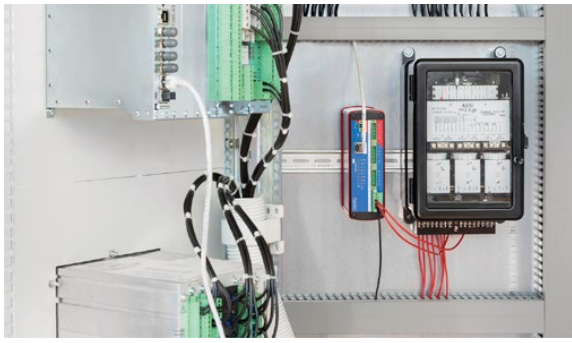
1 Access to remote binary I/O terminals

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.

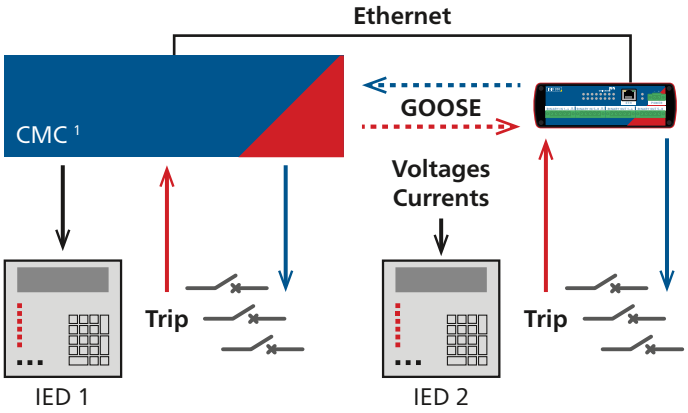
2 Permanently installed test terminal

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.



3 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.



[1] Test Universe with GOOSE Configuration Module required

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.

Custom GOOSE configuration

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

GOOSE Configuration for CMC test sets

To set up a CMC test set to interface with an ISIO 200, the configuration can be downloaded from the device to be used in the GOOSE configuration module.

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 format.

Mounting Options

Tabletop use

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

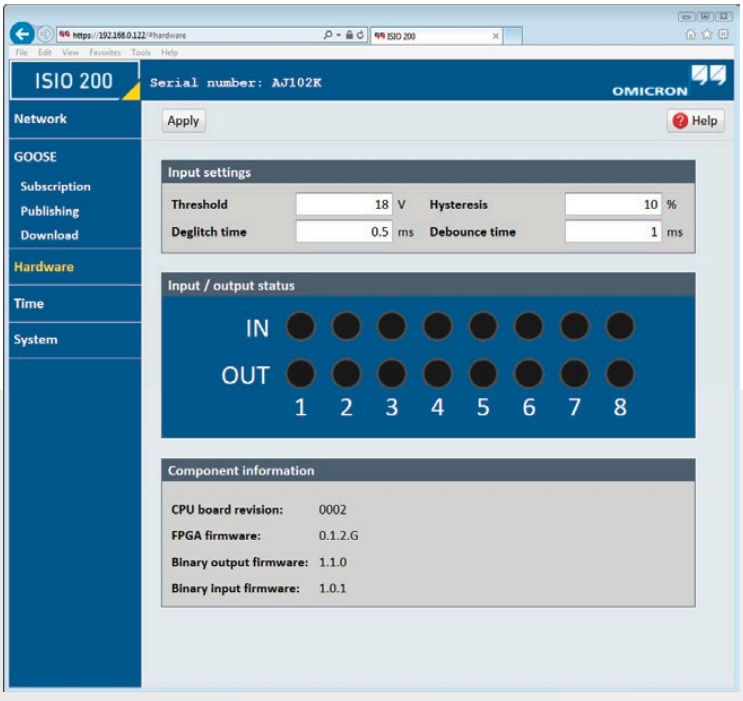
DIN rail mounting

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).



Easy configuration via web interface

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)	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 140 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.

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