

# Documentation

## General

IOMOD modules Step file -> Download

## IOMOD 8DI4RO



## IOMOD 8DI8DO





# IOMod 8DI8DO

Industrial 8 digital inputs and 8 digital outputs module



IOMod 8DI8DO is a stand-alone Modbus (RTU, IEC 60870-5-101, and IEC 60870-5-103) digital input and digital output controller, designed to be used in industrial applications where digital signaling is used and robust communication is essential.

IOMod 8DI8DO is an ideal solution for data acquisition, control, process monitoring and remote measurement. Controlled over Modbus or IEC protocols, it can be connected to parallel or RS-485 equipment in SCADA systems.

When used with a WCC Line gateway it is possible to monitor and control over a GPRS or 3G/4G/LTE/5G/6G network. It enables monitoring, alarm management, and data logging on CloudIndustries.eu platform.

**Features**

- 8 digital inputs
- Configurable active input signal polarity or input inversion
- Configurable SPI, DPM, SDO, and ODO support
- Configurable feedback for outputs with inputs
- Configurable pulse outputs and permanent outputs
- Input grouping
- Output grouping
- Feedback configurable time
- 8 digital open collector outputs
- Galvanically isolated inputs and outputs
- Configuration over USB console
- Drag and Drop firmware upgrade over USB mass storage
- Modbus, IEC 60870-5-101 and IEC 60870-5-103 communication over RS485
- Software selectable termination resistor on RS485
- LED indication for input/output and data transmission
- Easy connection with WCC Line gateway and CloudIndustries.eu platform

**Applications**

- Power Grid
- Solar energy
- Wind energy
- Hydro energy
- Energy storage systems
- Factory resources supervision
- Substation automation projects

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IOMod 8DI8DO

## IOMod 16DI



ELSETA  
IOMOD 16DI  
User manual

# User Manual

Elseta  
414/2017  
V1.1



# IOMod 16DI

Industrial 16 digital input module



IOMod 16DI is a stand-alone Modbus (RTU, IEC 60870-5-101, and IEC 60870-5-103) digital input and digital output controller. Designed to achieve a high technological level and compact fit on DIN rail (24 60mm), IOMod 16DI is used for industrial applications where digital signaling is used and robust communication is essential.

IOMod 16DI is an ideal solution for such applications as data acquisition, control, process monitoring, testing, and measurement. It is controlled over Modbus or IEC protocols, and can be connected to parallel or RS-485 equipment in a multi-drop network as in any SCADA system.

When used with a WCC Line gateway it is possible to monitor and control over a GPRS or 3G/4G/LTE/5G/6G network. It enables monitoring, alarm management, and data logging on CloudIndustries.eu platform.

**Features**

- 16 digital inputs
- Configurable active input signal polarity or input inversion
- Configurable SPI, DPM
- Pulse count and ON time count
- Galvanically isolated inputs
- Configuration over USB console
- Drag and Drop firmware upgrade over USB mass storage
- Modbus, IEC 60870-5-101 and IEC 60870-5-103 communication over RS485
- Software selectable termination resistor on RS485
- LED indication for input and data transmission
- Easy connection with WCC Line gateway and CloudIndustries.eu platform

**Applications**

- Power Grid
- Solar energy
- Wind energy
- Hydro energy
- Energy storage systems
- Factory resources supervision
- Substation automation projects

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IOMod 16DI

## IOMOD 8AI



# User Manual



## IOMod 8AI

Industrial 8 analog inputs module



IOMod 8AI is a standalone Modbus RTU, IEC60703-5-103 and IEC60703-5-104 analog input device, designed for applications requiring high accuracy in real-time voltage or current measurements. IOMod 8AI can be used for numerous applications where user needs to log voltage or current changes. IOMod 8AI can be used to measure temperature, pressure, water level or weight with corresponding sensors (e.g. 4-20mA). IOMod 8AI input measurement resolution, scaling and data casting can be configured by user's PC software individually.

IOMod 8AI is an ideal choice for data acquisition, control, process monitoring and remote measurement. Controlled over Modbus protocols, it can be connected to other equipment in SCADA system.

When used as a WCC Lite gateway, it enables monitoring current values over Ethernet LAN's or GPRS networks, facilitating remote alarm management, and data logging on cloudIndustries.eu platform.

### Applications

- Power grid
- Solar energy plants
- Wind energy plants
- Hydro energy plants
- Energy storage applications
- Factory resources supervision
- Substation automation projects

### Features

- Data measurement in 16-bit resolution
- Fully configurable data scaling and casting
- Selectable input sensitivity
- Configuration over USB console
- Drag and Drop firmware upgrade over USB mass storage
- Modbus RTU, IEC 60703-5-103 and IEC 60703-5-104 communication over RS485
- Software selectable load termination resistor for RS485
- LED indication for data transmission
- Easy connection with WCC Lite gateway and CloudIndustries.eu platform.

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IOMod 8AI

## IOMOD 4Cs4Vs



# User Manual



# IOMod 4Cs4Vs

## 4xCurrent 4xVoltage sensors module



IOMod 4Cs4Vs is a stand-alone analog inputs measurement module for voltages and currents based on sensor technology with communication support based on Modbus RTU, IEC 60870-5-101, and IEC 60870-5-103 protocols. Designed to measure voltage and current values with high accuracy in real-time, IOMod 4Cs4Vs can be used for numerous applications like electrical distribution substations, power plants, and railway power supplies where the user needs many other measurements like active, reactive, and complex power for every phase, power factor, phase angles for currents and voltages, and harmonics.

### Applications

- Power Grid
- Solar energy plants
- Wind energy plants
- Hydro energy plants
- Energy storage applications
- Factory resources supervision
- Energy sub-metering applications
- Substation automation projects

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IOMod 4Cs4Vs

## IOMOD Meter



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# IOMod Meter

## meter module for LV and MV



IOMod Meter is a stand-alone metering measurement module for voltages and currents based on sensors technology with communication support based on Modbus RTU, IEC 60870-5-101, and IEC 60870-5-103 protocols.

Designed to measure voltage and current values with high accuracy in real-time, IOMod Meter can be used for numerous applications like electrical distribution substations, power plants, and railway power supplies where the user needs many other measurements like active, reactive, and complex power for every phase, power factor, phase angles for currents and voltages, and harmonics.

### Applications

- Power Grid
- Solar energy plants
- Wind energy plants
- Hydro energy plants
- Energy storage applications
- Factory resources supervision
- Energy sub-metering applications
- Substation automation projects

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IOMod Meter

## IOMOD FPI



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Elseta  
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### IOMOD FPI

Fault passage indicator



IOMod FPI is a fault passage indicator module for medium voltage applications that can be used as a standalone device or part of Elseta mid-BUS with voltages and currents based on sensors technology or with adaptors connected to current and voltage transformers with communication support based on Modbus RTU, IEC 60325-001, and IEC 60325-003 protocols.

Designed for short-circuit 2+1 earth fault indicator with direction detection, IOMod FPI can be used for numerous applications like electric power distribution substations, photovoltaic and hydro power plants and railway power supplies where the 2+1 earth fault indicator is required.

IOMod FPI also provides current and voltage RMS values to and can perform many other measurements like active power for every phase, power factor, phase angles for currents and voltages, and more.

Due to its small size and complex functionality it can be used in any application like a recloser, RTU, switchgear retrofit project. This device enables and distribution network operators (DNO) to convert substations into smart grid elements.

#### Applications

- Power Grid
- Solar energy plants
- Wind energy plants
- Hydro energy plants
- Smart RMU applications
- Factory resources supervision
- Energy sub-metering applications
- Substation automatic projects

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#### Features

- Directional fault detection for all network types;
- Earth fault detection;
- 50/60Hz instantaneous overcurrent detection;
- 51/52 Phase directional overcurrent detection;
- 47N Neutral directional overcurrent detection;
- 27 Under-voltage detection (with VT or LPTV);
- 50/52 Over-voltage detection (with VT or LPTV);
- Breaker latch blocking for selected protections;
- 2 settings groups;
- Measurements of RMS values for currents, phase, and phase-to-phase voltages;
- Additional measurements of frequency, active, reactive, and apparent power, neutral voltage, neutral current, power factors, phase angles, total harmonics distortion and more.

LPTV - low power VTs (IEC 61869-1) or voltage sensors.

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IOMOD FPI

## IOMOD HT



# User Manual

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## IOMOD 4RTD

Esata  
19/03/2018  
V1.1



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User manual



## IOMod 4RTD Industrial 4 temperature sensors module



IOMod 4RTD is a stand-alone Modbus RTU, IEC 60320-5-10, and IEC60320-5-10 temperature sensor device, designed for accurate indoor temperature measurement across a wide range, with high accuracy and repeatability even after frequent heating and cooling cycles. Equipped with 4 temperature measuring channels to enable temperature reading with default configuration.

IOMOD 4RTD is ideal for acquisition, observation, and process monitoring over a broad temperature spectrum in a wide range of applications in industries like plastic, food, and microelectronics.

Compatible with IEC 60320-5-10, IEC 60320-5-10, air IEC60320-5-10, I can integrate seamlessly into SCADA.

With a WCC Lite gateway, it enables remote control of temperature readings over RS485 or GPRS/UMTS/GSM/UMTS networks, alarm management and data logging on cloud/industrial platform.

### Applications

- Power Grid
- Solar energy
- Wind energy
- Hydro energy
- Energy storage applications
- Factory resources supervision
- Substation automation projects



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### Features

- Temperature measurement of 0.1°C accuracy for all operating conditions
- Temperature sensing range from -50 to 150°C using platinum RTD sensors
- Modbus, IEC60320-5-10, IEC60320-5-10 communication over RS485 physical layer
- Selectable PT100 or PT1000 temperature RTD sensor and connection type (2, 3 or 4 wires) for each channel
- Configuration over USB console
- Drag and Drop firmware upgrade over USB mass storage
- LED indications for power, USB connection, sensor and temperature fault conditions for all channels
- Easy connection with WCC Lite gateway and CloudIndustries.eu platform

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IOMod 4RTD

## IOMod T

Esata  
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V1.0



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CLMod



# CLMod

RS485 to current loop converter



CLMod is an RS485 to 20 mA current loop converter. This converter was developed to read multiple meters of data over a 2-wire current loop interface with long-distance lines up to 2km. CLMod with 6 current loop interfaces is capable of reading data up to 30 meters (5 meters per single current loop). CLMod is protocol agnostic; you can use any type of serial protocol.

## Applications

- Power Grid
- Solar energy
- Wind energy
- Hydro energy
- Energy storage applications
- Factory resources supervision
- Energy sub-metering applications

## Features

- 6 Independent 20mA current loop interfaces
- Galvanic (kVOM) isolation
- LED indication of data transmission on every current loop interface
- Supports 5 meters per current loop (30 meters total)
- Stand safety: zero to glass
- Automatic open-loop detection and disconnection
- Fall indication for each current loop
- Integrated current loop protection
- Compatible with Egama Elektronika meters
- RS485 Interface for RTU/Gateway
- Operating temperature: -40°C to +85°C
- Dimension 140x100x120 (mm)



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CLMod

## Voltage Sensor Amplifier



# Voltage Sensor Amplifier

multi IOMOD Meter with single voltage sensor



The Voltage Sensor Amplifier is designed to allow a single voltage sensor (per phase) to interface with multiple IOMOD Meter and IOMOD PM devices, eliminating the need for amplitude and phase correction.

Enhance your engineering applications with our advanced three-channel Voltage Sensor Amplifier. Engineered for high precision, it provides a stable impedance load to maintain the accuracy of your sensors. With a gain factor of 1, it ensures signals are transmitted without distortion. Facilitate the simultaneous use of multiple measuring devices to your sensors, eliminating the need for complex factor calculations and timing. Optimized for use with this robust and reliable solution.

This device is ideal for applications such as substation monitoring, calibration checks, at-term, power measurement, data logging, safety analysis. It's compatible with PFI, DFI, IOMOD, Multifunction Protection Relays, Merging and RTU applications.

## Applications

- Power Grid
- Solar energy
- Wind energy
- Hydro energy
- Smart EMS application
- Factory resources supervision
- Energy sub-metering applications
- Substation automation projects

## Features

- Very simple installation
- Not affect amplitude and phase correction
- Isolated power circuit
- Wide operating range



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Voltage Sensor Amplifier

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