Signals and Energy Data multisio Signal and Energy Data recording

## **THE SPECIALISTS FOR SIGNALS!**

#### When the most diverse measurement tasks require a flexible solution

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	Modul Modul		KBR	
		Display Modul		
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## MADE IN GERMANY

## Never let any valuable signal information go to waste untapped.

With future-proof technology and the highest possible precision, the multisio signal recording system forms the basis for more transparency and efficiency in energy management.

## Monitor systems and processes,

## record energy volumes

# multisio



The **multisio modular system** offers unlimited monitoring and energy data recording options. You can connect up to five expansion modules to the central memory unit, the core of the system.

Various functions are possible, dependent on the input or output type. The web-based visual energy analysis software allows you to conveniently evaluate the bus-compatible multisio devices.

## THE MULTISIO SPECIALTY: RECORD ANYTHING YOU CAN MEASURE



The strength of multisio: recording, documenting and evaluating many different energy types, consumption values and states. This highly flexible system, consisting of a system center and expansion modules, supports you with numerous functions and interfaces to make all measurement tasks easier.

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#### Measured value display

With the (optional) display, measured values can be conveniently displayed on site.

multisio display

eBus

multisio D6

92 91 90

BAL

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44 45 30 31 1

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#### **Decentralized system**

The bus-compatible **multisio central unit** is the core of the multisio system. Here you can connect up to five expansion modules in a decentralized setting.

#### • visualenergy

#### **Real-time control**

The energy management software **visual energy** allows you to conveniently visualize, analyze and optimize all of your measured data.

## THE MULTISIO PRINCIPLE: ALL SIGNALS UNDER CONTROL



#### Meter reading

Using the pulse outputs of existing meters, you can record consumption values. In addition to the **load profile**, you can benefit from numerous other functions.

- Saving the amount of energy consumed as a graphic. This allows you to easily visualize how you consume energy and identify any unnecessary consumption at a glance
- Quick and convenient remote reading of the meter
- Automatic integration of data in cost centers
- Readout of consumed amounts of energy over different time periods

#### Meter totaling function

You can **add and/or subtract** recorded meter values. The newly calculated total can then be transferred using a **digital output**, e.g. to an energy optimization input. The newly calculated quantity is also saved as a **load profile**.

#### **Error messages**

- By monitoring fuses and switches, faults can be easily visualized and reported
- By setting defined limit values, exceedances are automatically reported (temperature, current, power, etc.)





multisio is the perfect solution wherever digital or analog signals have to be recorded and evaluated – in industrial applications, trade or building technology. You can quickly and reliably merge and visualize all relevant parameters. This way, you can keep track of everything and react in time.

#### Recording operating hours

- Accurate recording of operating hours or machine running times makes it possible to report and carry out maintenance in accordance with the actual operating hours
- This function is also possible for energy measurements using multimess D4 or multisio D2-4CI. A threshold value is then set from when to start the recording of operating hours

#### Heating and cooling measurements

- Measuring absolute heating and cooling energy. At the same time, energy and flow rate are stored for evaluation as a load profile
- Recording of flow and return temperatures as instantaneous values and saving as mean values in graphical form
- Messages when specified temperatures are exceeded or not reached (e.g. flow temperature)

#### **Temperature recording**

- Measuring and visualizing the current temperature. The temperature is also saved as a graphical mean value representation.
   Documentation of the temperature curve e.g. for standard verifications
- Message when set temperature limits are exceeded or not reached



#### **Energy measurement**

- Measuring and displaying electrical parameters. The values can be saved as peak value curves. The energy volume is saved as a standard load profile to analyze energy consumption behavior
- Message if limit value of measurement parameters is exceeded or not reached



## THE MULTISIO EXPERTISE: UP TO ANY MEASUREMENT TASK





#### Intelligent monitoring in data centers

A modern data center requires an intelligent alarm and monitoring system for monitoring all rack fuses and temperatures. Any imminent overload or rise in temperature needs to be rapidly detected, the reasons determined and the responsible persons notified.



#### Recording and documenting noise emissions

As local residents increasingly complain about noise pollution, the company needed to measure and document noise emissions. In future, the responsible person will be notified immediately if the maximum noise level is exceeded.



#### **Comprehensive transformer station control**

Transformer operators must monitor their equipment's apparent power. They also need to know immediately if water has penetrated the station or if any publicly-located transformer station doors have been opened.

More and more companies rely on automated systems due to the increasing complexity of operational processes. To make sure these systems function reliably, rapid access to plausible information is a prerequisite. A field in which multisio particularly excels.

The KBR solution: The currents in the racks are measured by the multisio D2-4CI, while the multisio D2-4TI monitors the temperatures in the data center. If 80% of the fuse current is reached, a warning is sent to the responsible employees. The **visual energy** evaluation software visualizes the racks and room online, issuing an alarm if warning thresholds are overshot. The responsible employee is also notified by e-mail.

#### The KBR recommendation

multisio D2-4Cl	→ p.10
multisio D2-4TI	→ <b>p.10</b>
visual energy	→ <b>p.16</b>

The KBR solution: Sound level meters with analog outputs were installed in the outdoor area of the company. These outputs are connected to a **multisio** D2-4AI. The visual energy analysis software is used to save the noise emissions for evidence purposes. If the maximum level is overshot, the responsible employee is notified electronically.

The KBR solution: The apparent power is measured using the

a door contact for this purpose. If any malfunctions are detected,

to the responsible employees.

multimess D4-0-BS. The multisio D2-4DI monitors a water alarm and

the **visual energy** evaluation software immediately sends a warning

#### The KBR recommendation

multisio D2-4AI	$\rightarrow$	p. 10
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#### The KBR recommendation

multisio D2-4AI → **p.10** visual energy multimess D4-0-BS

→ **p.16** 

**Product advice:** +49 (0) 9122 63730

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You would like to find out how you can use multisio to increase the efficiency of your energy data management? We will show you the options.

## multisio



#### System center and expansion modules

#### **Highlights** →

- Ideal for use in installation distributions
- → Compact design
- → Expandable on a modular basis
- → Wide range of modules for digital and analog inputs/outputs and for temperature recording

An overall view of **technical details** can be found on pages 12/13.

**multisio** is a modular system for signal recording and processing. You can select from a wide range of functions depending on the input or output types. This system is capable of recording the pulses from consumption meters, saving them as both continuous counter data and as standard-compliant load profiles. Alternatively, a digital input can also be used to record the status (switching protocol) or operating hours. The operating hours are available as continuous counter data and charts. Compact expansion modules are available for a wide range of signal forms (0-20 mA, 4-20 mA, 0-10 V, PT1000, current, power, etc.). Five expansion modules, each with up to 25 signal inputs, can be can be connected to a central storage unit via ready-made RJ45 cables.



#### Input and output configuration

DEVICE TYPE	INPUTS	OUTPUTS	POSSIBLE FUNCTIONS
MEMORY MODULE			1
D6-1-ESBSDS-5DI6RO1DO-US1	5 x digital	6 x relay 1 x DO 1 x display	<ul> <li>→ Consumption recording</li> <li>→ Status logging</li> <li>→ Operating hours recording</li> <li>→ Pulse summation</li> <li>→ Relay switching</li> <li>→ Analog values recording</li> <li>→ Temperature recording</li> <li>→ Heat quantity recording</li> <li>→ Electric energy</li> </ul>
DISPLAY			-
multisio F96-TFT	-	-	$\rightarrow$ Display
EXPANSION MODULES			
D2-4DI	4 x digital	-	<ul> <li>→ Consumption recording</li> <li>→ Status logging</li> <li>→ Operating hours recording</li> </ul>
D2-4AI	4 x analog (0 – 20 mA / 4 – 20 m A / 0 – 10 V)	-	$\rightarrow$ Consumption recording
D2-4CI	4 x current (0 – 6 A)	-	→ Current recording
D2-4TI	4 x temperature (PT1000)	-	$\rightarrow$ Temperature recording
multimess D4-0-BS	3 x voltage + current	-	$\rightarrow$ Electric consumption recording

## multisio Technical details



multisio system center

[1] D6-1-ESBSDS-5DI6RO1DO-US1

DEVICE TYPE

		[2] F96-DS-TFT
DISPLAYS	Operation	Pushbutton for reset and scan mode
	Display	6 green LEDs: 5 x input status 1 x operating status [2] TFT
MEMORY	Main, data and program memory	2 MB RAM battery-buffered/ 256k EPROM
	Memory type	Ring buffer
	Long-term memory for max. 160 days min. 64 hours, depending on memory configuration	Load profile memory: Maximum 25 x 3840 entries 60 / 30 / 15 / 1 min Period duration for high and low tariff configurable via software
	Event memory	Maximum 4096 entries for recording tariff switching commands, mains failures, error messages, etc.
INPUTS	Digital input for floating contact, S0-compatible	5
	Analog input, 0–20 mA, 4–20 mA, 0–10 V	-
	Current input, 0–6 A	-
	Temperature input, PT 1000	-
OUTPUTS	Relay contact, floating (shared source), switching capacity 250 V AC, 2 A	6
INTERFACE	KBR eBus (RS485)	•
	KBR module bus (RS485)	•
	KBR display bus (RS485)	•
	Baud rate	38400
	Address assignment	Addressable up to address 9999, automatically via software, scan mode can be activated on the device
POWER SUPPLY	Operating voltage	85 – 265 V AC / DC, 50 / 60 Hz
	Power consumption	15 VA
MECHANICAL DATA	Housing Horizontal pitch and dimensions in mm (H $\rm x$ W $\rm x$ D)	6HP (90 x 108 x 61)
	Mounting type	Wall mounting on DIN rail, 7.5 mm deep, in accordance with DIN EN 50022, suitable for distribution board mounting
	Weight	Approx. 650 g



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-	-	-	[1] 4 x -40 C° to +40 C° [2] 4 x -20 C° to +80 C° [3] 4 x -10 C° to +105 C°	-	
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38400					
Automatic module bus addressing, scan mode can be activated on the device					

24 V DC, supply via module bus				via measuring voltage
2 VA	VA 1 VA 1.2 VA 1 VA			
2HP (90 x 36 x 61)				4HP (90 x 72 x 61)
Wall mounting on DIN rail, 7.5 mm deep, in accordance with DIN EN 50022, suitable for distribution board mounting				

Approx. 80 g	Approx. 80 g	Approx. 80 g	Approx. 175 g	
	Approx. 80 g	Approx. 80 g Approx. 80 g	Approx. 80 g Approx. 80 g Approx. 80 g	Approx. 80 g         Approx. 80 g         Approx. 80 g         Approx. 175 g

## multisio Set-up and expansion of signal recording



#### multisio D6-1-ESBSDS

5 digital inputs for floating contacts, S0-compatible



- Consumption recording
- Status logging
- Operating hours recording
- and much more.

4 digital inputs for floating

contacts, S0-compatible

multisio D2-4DI

- Applications e.g.:
- Consumption recording
- Status logging
- Operating hours recording
- and much more.

Any questions about multisio? From product consulting to startup – our technical advisors are always at your service. Product advice: +49 (0) 9122 63730

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## **VISUAL ENERGY:**

## EASY AND SAFE ENERGY DATA CONTROL



#### ENERGY RECORDING

- Modern energy data management in accordance with ISO 50001
- Seamless recording Seamless recording of all consumption, types and states of energy
- 100% plausible measurement in accordance with BDEW metering code and VDE application rule
- MSCONS format for future-proof data import and secure communication with energy suppliers, network or meter point operators

#### **ENERGY VISUALIZATION**

- Continuous visual analysis process from data preparation to evaluation
- Comprehensive selection of custom and pre-made diagrams and reports
- Easy to create **meaningful key figures**
- **Favorites** for custom organization of the system: practical for direct access to the essentials
- Interactive dashboards for a fast and comprehensive overview

With comprehensive functionality, this web-based visual energy software provides transparent and efficient energy management. You can easily record, monitor, analyze and process any energy information from networks or systems. This helps you keep track of network quality, supply structure and energy costs.



#### **ENERGY MANAGEMENT**

- User-defined workflows and favorites
- Automatic monitoring of network quality, consumption values, projected energy volumes and device parameters
- Additional security with active early-warning system and monitoring of outgoing fuses
- **reports** and **measures** for efficient control
- Reliable for third-party quantity limitation and residual current measurements

#### **ENERGY EVALUATION**

- SEU reports, regression analysis, Sankey diagrams, heat maps, filter analysis and much more
- Individual key figures with your production data integrated
- Standardized report preparation
- Secure data export in common data formats, such as PDF, CSV, MSCONS or OPC
- New unlimited user administration

# FOR YOU. ON SITE WORLDWIDE.





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Switzerland Taiwan Thailand Turkey United Arab Emirates Ukraine KBR is your reliable energy management partner. With precision technology, efficient solutions and a comprehensive range of services, the KBR system helps companies in the plant engineering, industry or craft sectors maintain their technical edge.

For a sustainable and future-proof energy supply.

Our services:

- Planning and consulting
- Energy measuring devices
- Analysis software
- System integration
- Seminars & workshops
- First-class services from one source

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