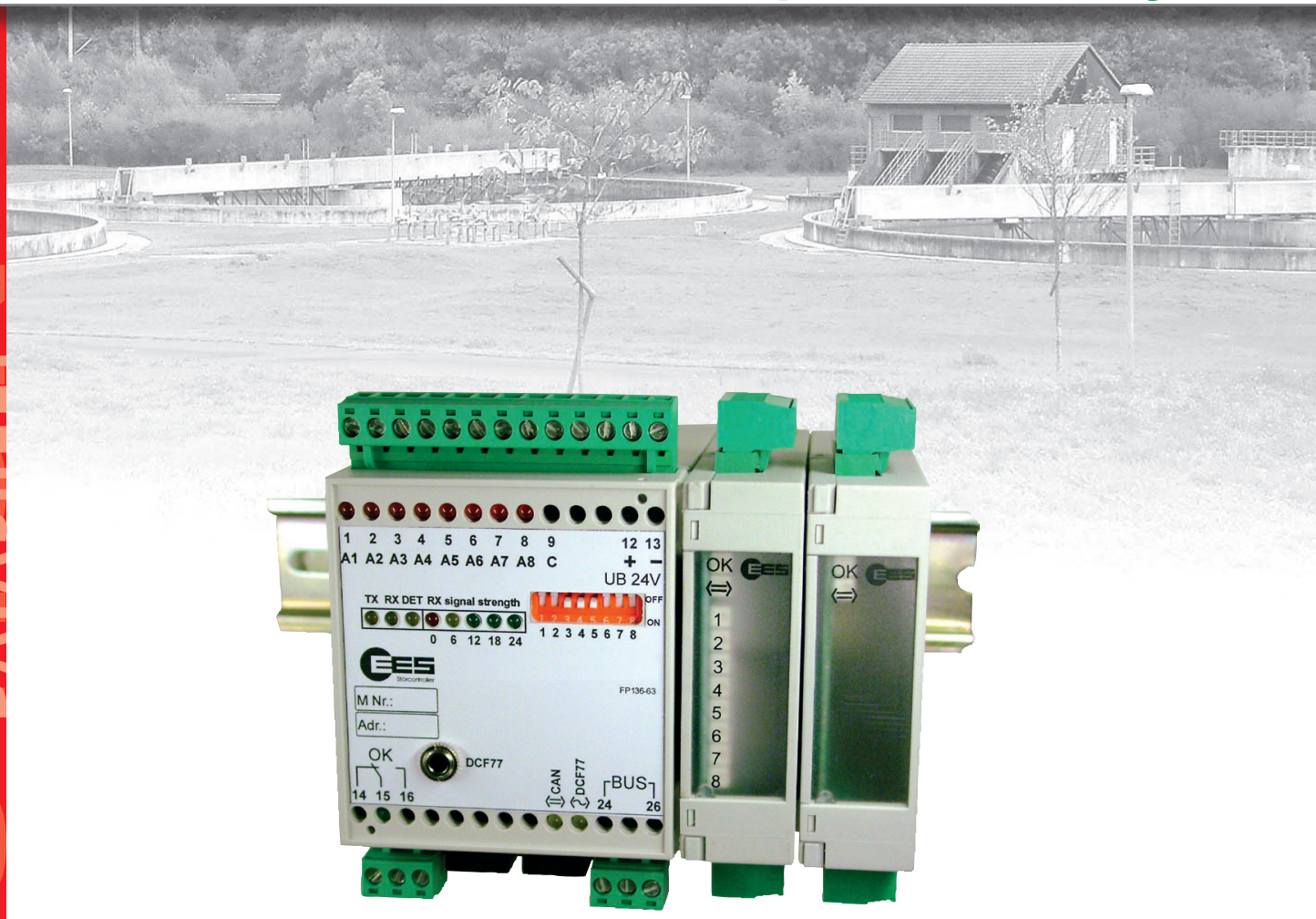
THE SOLUTION

DATASHEET

A system from the
MFW-product family



MFW - Dedicated line telecontrol system

Telecontrol on private and public dedicated lines

- Modular configuration for up to 15 I/O modules per station
- Connenction of common measurement converters and emitters
- Signalisation of the reception level per LED bar
- Simple connection to other transmission media, e.g. radio or two-wire within the framework of the MFW product family
- Simple adaptation of transmit levels to the line quality of the transmission link per DIP-switch
- Integrated diagnostic tools to display the operating status per LED-display and via terminal program

INFO www.ees-online.de

Functional description

The **MFW Modular Telecontrol Network** has been specially conceived for the interconnection of widely scattered outdoor installations, such as for example pump, transformer and gas regulating stations, storm-overflow reservoirs, inspection chambers and elevated reservoirs. The MFW can be operated as a fully independent, cost-effective telecontrol system or as an extension to existing telecontrol interface modules. Almost all types of cable (telephone line, three-phase current cable, cable screen, electrically isolated cable, optical fibres etc.) and various radio ranges are suitable as transmission media. This documentation covers only a small section of this: Transmission on dedicated lines.

The telecontrol system in the dedicated line variant consists of a central station and an outstation. Each station requires at least one **basic module**, containing the following function groups, display and setting elements:

- Internal analog dedicated line modem
- RS 232 parameterising and diagnostics interface
- I/O module with optionally 8 binary inputs or outputs with status LED
- Two CAN bus interfaces for connecting the expansion modules
- Watchdog LED and fault signalling contact
- DIP switches for setting the station address, module number, etc.

Each basic module can be fitted with up to a maximum of 15 expansion modules in order to increase the I/O scope. These are connected via the CAN bus interface. You can find more detailed information in the separate datasheet „Expansion modules“.

Each **I/O module** is given a module number. The data is exchanged between modules with the same module number. The physical arrangement of the modules within the system (the station address) is of no significance at all here. The input module with number 5, for instance, tranmits its data to all the output modules whose number is 5.

Changes of the **measuring and set values, messages, commands, momentary and counting pulses** are exchanged cyclically between both stations. In the case of digital I/O modules the inputs/outputs 1-4 can be switched over between the two types of function - static or counting/momentary pulses. Analog signals can be transmitted both as voltage values 0-10 V or as current values 0-20 mA.

If the data transmission is faulty, the system recognises the faulty communication and signalises this by LED and relay contact both to the central station as well as to the outstation. After the cause of the fault has been rectified, normal operation is resumed automatically.

Configuration of the system is simple and easy. On the modules themselves it is only necessary to set the module number (0 ...254), transmit level, static / counter value for digital I/Os as well as current/voltage in the case of analog signals etc.

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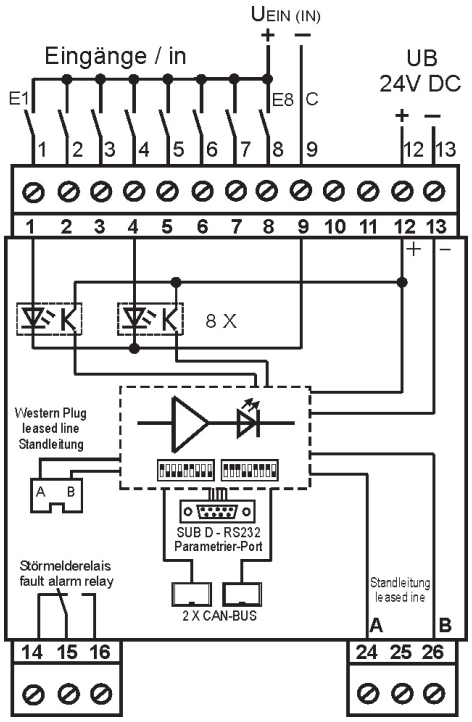
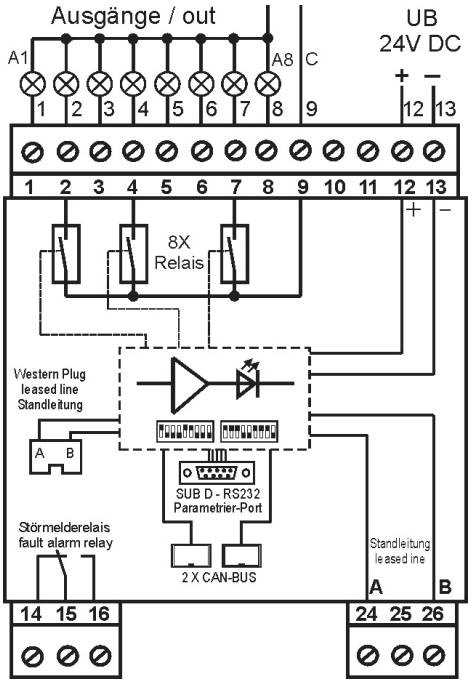
Terminal assignments



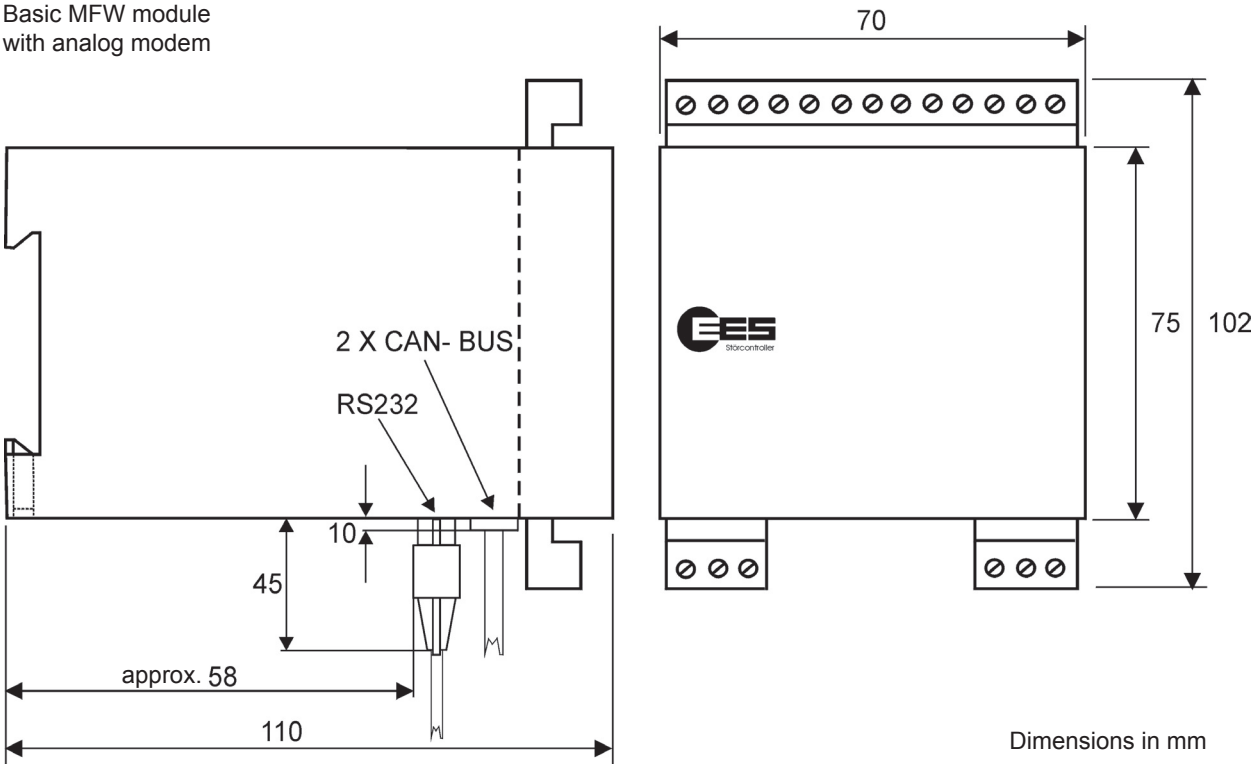
Basic module with
8 digital inputs



Basic module with
8 output relays

Dimensional drawing

Basic MFW module
with analog modem



Dimensions in mm

The right to make technical changes is reserved

Technical data

General data	
Rated operating voltage	24 V DC
Operating voltage range	20 ...32 V DC
Operating and ambient temperature	0 °C ...+60 °C
Storage temperature	0 °C ...+70 °C
Air humidity	maximum 95 %, non-condensing
Connection terminals	pluggable
conductor cross-section rigid or flexible	
without wire-end sleeve	0,2 ... 2.5 mm^2
with wire-end sleeve	0,25 ... 2,5 mm^2
Housing / protection class	plastic / IP 40
Dedicated line modem	
Input voltage of the dedicated line	-8 dBV is equal to 1,1 V_{pp}
Minimum transmission level acc. to DIP-switch setting	200 mV_{pp} - 630 mV_{pp}
Digital input module	
Power consumption	approx. 2.5 W
Signal voltage	see table
Tresholds for 24 V nominal voltage *	
maximum voltage	48 V
voltage for high-level (DC)	> 10 V respective < -10 V
voltage for high-level (AC)	> 15 V_{RMS}
voltage for low-level (DC)	< 9 V respective >-9 V
voltage for low-level (AC)	< 9 V_{pp}
Input resistance	see table
Maximum count rate	10 Hz
Minimum pulse width	50 ms
Electrical isolation between signal and supply voltage	4 kV_{RMS}
Digital output module	
Power consumption	approx. 3.5 W
Contact loading of relay outputs**	
minimum	1.2 V / 1 mA
maximum	250 V AC / 400 mA 250 V AC 2 A (purely ohmic load) 30 V DC / 2 A 110 V DC / 0.2 A 220 V DC / 0.1 A
Total current 230V AC (purely ohmic load)	max. 8 A
Count rate	12 Hz *
Pulse width / pause	40 ms *
Electrical isolation between output and supply voltage	4 kV_{RMS}
Electrical isolation between dedicated line and supply voltage	2 kV_{RMS}

Digital input modules are available with various signal voltages. The corresponding voltage is defined by the 23th digit of the type identification.

Type	Rate voltage	Voltage range limit	Input resist-ance
..-ASMOD-G8DEX-DIA-S-BA-0	12 V AC/DC	9V – 24V AC/DC	approx. 5 kΩ
..-ASMOD-G8DEX-DIA-S-BB-0	24V AC/DC	16V – 48V AC/DC	10 kΩ
..-ASMOD-G8DEX-DIA-S-BE-0	60V AC/DC	35V – 75V AC/DC	22 kΩ
..-ASMOD-G8DEX-DIA-S-BF-0	110V AC/DC	75V – 130V AC/DC	68 kΩ
..-ASMOD-G8DEX-DIA-S-BJ-0	220V AC/DC	180V – 255V AC/DC	180 kΩ

* Other figures on request
** Accuracy specifications on request.

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Order indentification

Master modules

MF-ASMOD-G8DEX-DIA-0-BB-0 8 digital inputs
MF-ASMOD-G8DAR-DIA-0-BX-0 8 relay outputs

Outstation modules

UF-ASMOD-G8DEX-DIA-0-BB-0 8 digital inputs
UF-ASMOD-G8DAR-DIA-0-BX-0 8 relay outputs

Expansion modules

Please find more information in our special datasheet.

Accessories

Connecting cable to PC or laptop, power supplies, DC/DC converter, battery back-up charg-ing unit, incl. battery packs.

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Applications

- Gas- and energy supply
- Energy management
- Water supply und distribution
- Sewage plants
- Heat supply
- Environmental technology
- Industrial plants
- Transportation engineering

Do you already know our two-wire telecontol system ?

- Telecontrolling on potential-free wires up to 30 km
- Modular extension up to 32 stations ans 512 I/O modules
- Network construction as bus or branch system
- High interference immunity due to carrier frequency method, Hamming distance > 6
- Easy coupling to other transmission medias, also to third party systems over several interfaces and protocols.

Further accessories and more detailed information may be found in the appropriate product sections in the catalogue.

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