

## Wire Breakage Detector / Short-Circuit- Line Monitoring

**DW2**

Characteristics:

- For load currents 5mA – 3A
- Monitoring also in idle state
- Short-circuit proof, 30s
- Status display in the front panel
- Malfunction message output plus switching
- Supply 24VDC
- Mountable on 35mm cap rail TS35
- Clear terminal labeling
- Narrow design
- Shape 17,5mm, super low
- PB - Power-Bus compatible
- High reliability, 5 years warranty



Description:

The devices of the wire breakage detector series DW2 have been developed for monitoring of both driven as well as non driven consumer wires. A small measuring current flows in idle condition through the consumer. In case of this should not be possible, due to the connected load, a resistor must be placed parallel to the consumer. To minimise the thereby caused, additional load and the power loss in driven condition, are separated measuring circuits for the driven and non driven condition at disposal. The jumper JP1, depending on the chosen parallel resistance, can be plugged on position 4, 5 or 6.

### Example:

Load range 80...400mA. Chosen parallel resistance 4,7kΩ (according to technical data).  
It results in: JP1 – 3 for the load current circuit and JP1 – 4 for the closed current circuit.

The proper condition of the wire is signaled through a plus switching malfunction message output, which in case of failure or loss of voltage switches off (closed current circuit). The intact measuring circuit is signaled by a LED in the front panel. If a short-circuit occurs, the module will switch its output off and will check cyclically every 10s whether there is still a short-circuit condition.

The devices of series DW2-1 are taking the load current directly from the driven output. Whereas the modules DW 2-2 have an additional power amplifier, its current is taken from the unit supply. The driving of the DW2-2 therefore is nearly without need of power. Therefore the units are also usable as power amplifier for PLC-output channels.

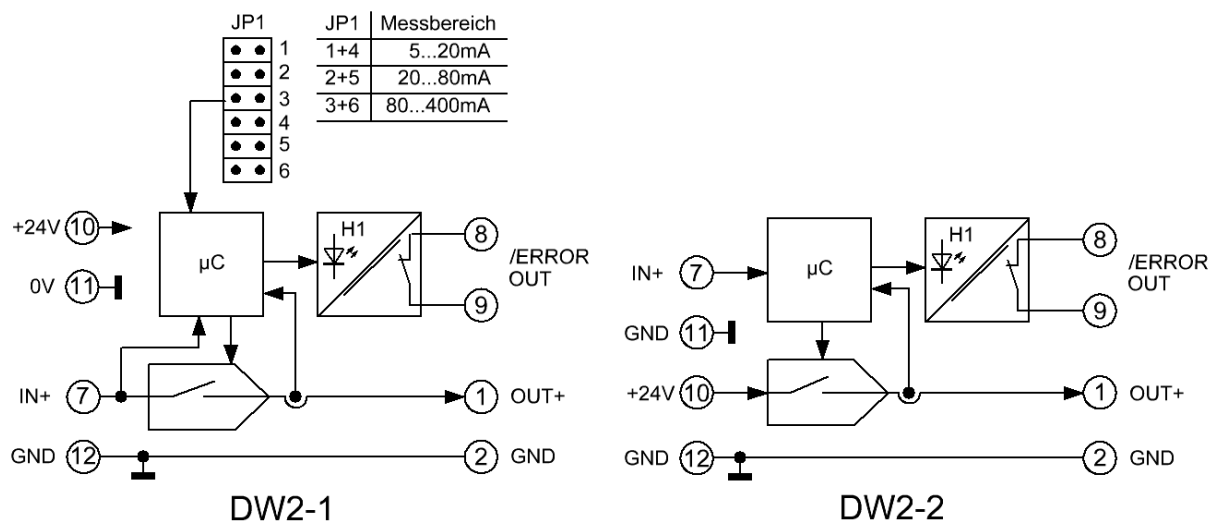
Application:

Monitoring of 24VDC PLC- / SPS outputs, safety technology  
Monitoring of alarm devices / extinguishing systems

**Order-No.:**

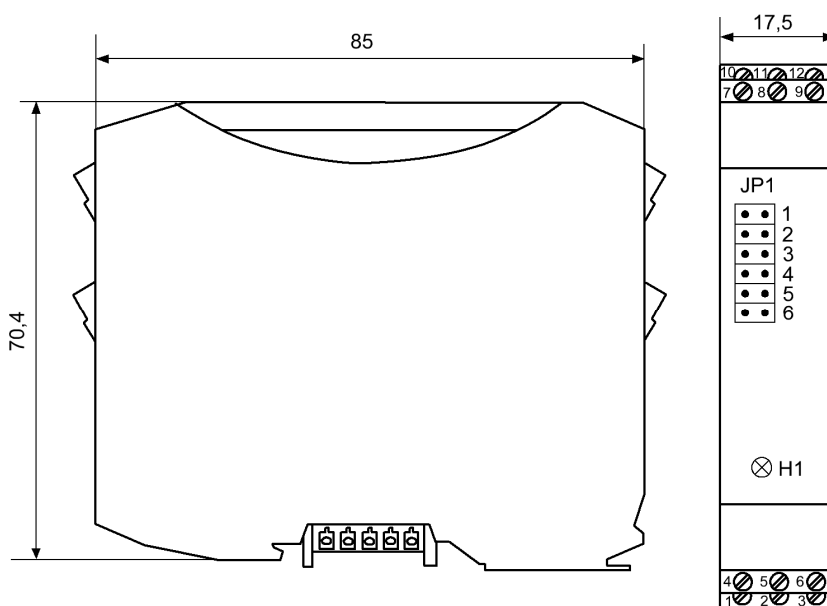
**Output:**

<b>DW2-1</b>	5...400mA
<b>DW2-2</b>	0, 32...3A



**Notice:**

For the type DW2-1 the adjustment for the load range by means of jumper JP1 -1, -2, -3 and for the closed current circuit by means of JP1 -4, -5, -6. They have to be plugged accordingly to the above table. Only if it is necessary to have a resistance parallel to the load (to let the measurement current flow), it is allowed to plug the jumper JP1 for the closed current circuit (-4, -5, -6), corresponding to the chosen resistance, deviating from the table. (cf. technical data).



## Technical Data

### Auxiliary power:

Supply voltage	:	19, 2...30VDC
Current consumption	:	< 1VA + malfunction message max. 50mA + load current

### Measurement current output circuits:

### Parallel resistance (optional)

DW2-1	:	0, 5...0,8mA	range 5...20mA	4,7kΩ / 0,5W, JP1 = 4
		1,9...3mA	range 20...80mA	1,2kΩ / 2 W, JP1 = 5
		7, 2...12,6mA	range 80...400mA	1,2kΩ / 2 W, JP1 = 5 or optional 4,7kΩ / 0,5W, JP1 = 4
DW2-2	:	20...25mA		75Ω / 10W, JP1 = 6
	:	1,5...2,5mA		1,2kΩ / 2 W JP1 = 5

### Outputs load circuits:

Voltage output	:	24VDC		
Current output	:	DW2-1	5...400mA,	short-circuit proof for max. 30s
		DW2-2	0, 32...3A,	short-circuit proof
Switch delay	:	Type: 50ms / max: 70ms		
Switch frequency max.	:	R-load 15Hz, L-load 1Hz		
Output resistance	:	in closed circuit	in load circuit	measurement range
		DW2-1	4,7kΩ	5...20mA
			1,2kΩ	20...80mA
			270Ω	80...400mA
		DW2-2	150Ω	0,32...3A
			47Ω	
			10Ω	
			2,7Ω	
			0,022Ω	

### Operating range:

### Safe error detecting

		<b>Load range:</b>	<b>Wire breakage:</b>	<b>Short-circuit:</b>
DW2-1				
Load range JP1 -1	:	5...20mA	< 1mA	> 40mA
Load range JP1 -2	:	20...80mA	< 10mA	> 160mA
Load range JP1 -3	:	80...400mA	< 40mA	> 800mA
JP1 -4,-5,-6	:	See table, or optional (see measurement current circuit)		
DW2-2 JP1 -6	:	0, 32...3A	< 160mA	> 6A
Optional JP1 -5	:	Optional (cf. measurement current circuit)		

**Calibrated version on request!!!**

### Outputs:

Malfunction message		
Contact	:	N/O contact (analog switch) with N/C contact function, max. 30VDC/100mA Contact resistance typical 0,85Ω, max. 2,5Ω
Switch delay	:	Type: 250ms / max. 300ms

### General data:

Operating temperature	:	0...50°C
Storage temperature	:	-25...+85°C, condensation before putting into operation is not allowed
MTBF	:	71 years mean time between failures – according to EN 61709 (SN 29500). Requirements: Stationary operation in clean rooms, average ambient temperature 40 ° C, no aeration, continuous operation

CE conformity : EN 61326-1, EN 61000-4-2/3\*/4/5/6\*, EN 61000-6-4  
\* during measurements small deviations are possible

**Body:**

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Dimension : See drawing, 17,5mm adjoin body, 17,5x70,4x90,5mm (with terminals)  
Material : PA / V0  
Protection category : IP20  
Connection : M3-screw-type terminal 0, 14 - 2,5mm<sup>2</sup>, flexible or inflexible  
Fixing : Snap-on mounting for norm rail TS35  
Weight : 66g  
Mounting position : As you like

**Note on safety:**

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Disconnect the power supply before attempting to open the unit.

During the operation of this module it is possible that parts of the module, even there is extra-low voltage, (for example shunt measurement) are under dangerous voltage! Therefore a non-observance of this caution may cause damage of property or physical injury.

Only trained qualified personnel should install or operate the unit. Before installation the qualified personnel should read the documentation and should familiarize themselves with the unit.

If there is visible damage to the body of the unit it should be immediately replaced and not put into operation.



Please ensure that there is a sufficient prevention against electrostatic discharge during installation of the unit.

**Installation Information:**

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Pay attention and make sure the unit is far away from mounted sources that may disturb the device such as magnetic coils, transformers, frequency converters etc.

**Wiring advice:**

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Use only shielded cables. The shield is to be connected extensively to ground. Do not mix power- and signal-wires/cables in the same cable tray.

**Limited warranty:**

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The LEG Industrie-Elektronik GmbH warranted that the product does not have any material or processing defects in a period of 5 years after date of delivery.

It is up to the choice of LEG to repair or to exchange an inoperative unit.

Subsequent damages or any claim for indemnification above the functionality of the unit are excluded.

This limited warranty is only valid if ...

1. the product was installed and put into operation according to the LEG operation documentation;
2. the technical configuration of the power supply was abided;
3. the product was not used for unintended purposes;
4. there were no unauthorized modifications or manipulations, misuse or repairs without previous agreement from LEG .

Our Terms of Trade are based on the "General Conditions for the supply of products and services of the Electrical and Electronics Industry" including the "Complementary Clause: Extended Reservation of Property" of the ZVEI e.V. (German Association of Electrical Manufacturers).

**Miscellaneous:**

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We expressly reserve the right, without previous notice, to correct errors contained in any data of this information brochure, and to make alterations to the program and technical modifications.