

# Monitoring Technique

**INFOMASTER**  
**Fault Annunciator**  
**AD 5999, AD 5993**

Translation  
of the original instructions



- For acquisition of operation- and fault signals
- Expandable from 3 up to 203 operation- and fault signal inputs
- Width 45 mm

Fault annunciator AD 5999:

- 3 inputs for operation- and fault signals
- Pushbutton connection for acknowledgement of horn and lamp test
- 1 relay for common alarm and 1 for horn

Extension unit AD 5993:

- 4 operation- and fault signal inputs

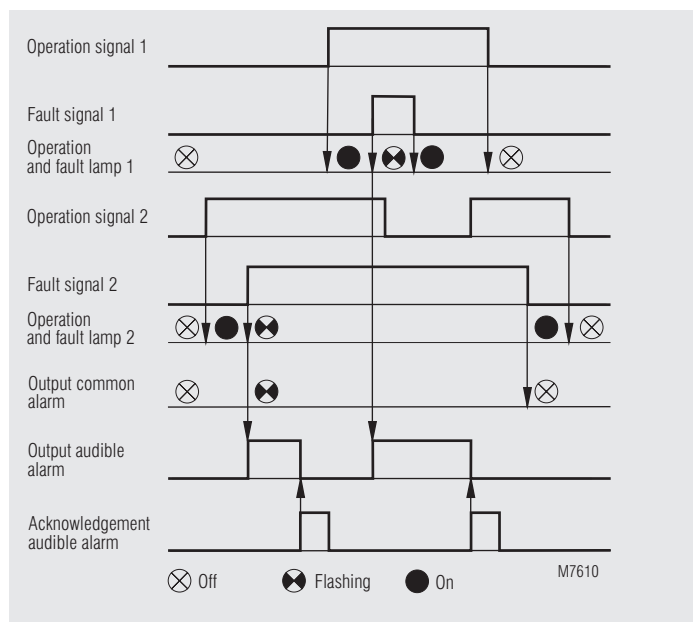
## Product Description

The AD 5999 control unit and the extension unit AD 5993 form an expandable fault annunciator system for displaying operating and fault messages.

## Approvals and Markings



## Function Diagram



## Application

For monitoring of industrial plants and buildings

## Notes

The connections A1, operation signals B1-B3 and B1-B4, fault signals S1-S3 and S1-S4 and lamp test-inputs LT have to be connected to the same phase.

Also when no common signal output is required the nominal voltage has to be connected to terminal 27.

The bus-lines H and S have a low voltage and are not allowed to be connected to external voltage (see Connection Example no. 1). If inductive or capacitive superimposed voltages are expected, it is recommended to use screened cables for these lines.

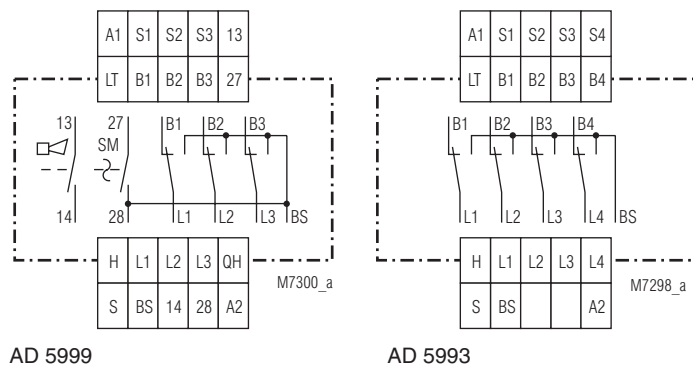
The flash impulse via flash line BS will be generated by an internal contact. The maximum load of this contact must be observed (technical data).

It is not allowed to connect lamps with transformers on the outputs. This would cause unintentional fault signals at the lamp test.

In case of units with AC-voltage, the signal lamps during the lamp test are lighting dim, as the test will be effected only with a half-wave. The half-wave voltage is also applied at terminals B1-B3 and B1-B4 during the lamp test.

If other lamps, except for the fault signal lamps, should be tested via the lamp test push button T1 it is necessary to use a lamp tester whose diode configuration is identically to the diode configuration of the fault annunciator. In case of DC-operation the lamp tester is AI 990 or AI 990.10.

## Circuit Diagrams



## Connection Terminals

Terminal designation	Signal description
A1	+ / L
A2	- / N
S1, S2, S3, S4	Measuring inputs for fault signals
B1, B2, B3, B4	Measuring inputs for operation signals
L1, L2, L3, L4	Fault signals outputs
QH	Control input for horn acknowledgement
LT	Control input for lamp test
13, 14	Relay output for horn
27, 28	Relay output for common alarm
H	Bus wire horn
S	Bus wire for common alarm
B	Flash impulse

## Technical Data

### Input

<b>Nominal voltage <math>U_N</math>:</b>	AC 24, 230, 240 V	
	DC 24 V	
<b>Voltage range:</b>	0.8 ... 1.1 $U_N$	
<b>Nominal consumption:</b>	AC 230 V	DC 24 V
	4 VA	1.5 W
<b>Nominal frequency:</b>	50 / 60 Hz	
<b>Fault impulse time:</b>	≥ 100 ms	
<b>Acknowledgement impulse time:</b>	> 200 ms	

### Output

#### Loading:

AD 5993 / AD 5999  
For each operation-fault light: AC 230 V 1 A max.  
(Terminals L1, L2, L3, L4 or L1, L2, L3)

AD 5999

Audible alarm output  
(terminal 14): AC 230 V 1 A max.

Common alarm output SM  
(terminal 28) and light signal  
via flash line BS totally: AC 230 V 3 A max.  
DC 24 V 2 A max.  
for higher switching capacities a  
contactor is to be inserted

Lamp test (pushbutton T1):  
Sum of the currents of all light signals

**Mechanical life:** > 100 x 10<sup>6</sup> switching cycles

## General Data

**Operation mode:** Continuous operation

#### Temperature range

Operation: - 20 ... + 60 °C

Storage: - 20 ... + 60 °C

Altitude: ≤ 2000 m

#### Clearance and creepage distances

Rated impulse voltage /  
pollution degree: 4 kV / 2 IEC 60664-1

#### EMC

Electrostatic discharge: 6 kV (contact) IEC/EN 61000-4-2

HF-irradiation

80 MHz ... 1 GHz: 10 V / m IEC/EN 61000-4-3

1 GHz ... 2.7 GHz: 3 V / m IEC/EN 61000-4-3

Fast transients: 2 kV IEC/EN 61000-4-4

Surge voltages: 1 kV IEC/EN 61000-4-5

Interference suppression: Limit value class B EN 55011

#### Degree of protection

Housing: IP 40 IEC/EN 60529

Terminals: IP 20 IEC/EN 60529

**Housing:** Thermoplast with V0 behaviour  
according to UL subject 94

**Vibration resistance:** Amplitude 0.35 mm  
frequency 10...55Hz IEC/EN 60068-2-6

20 / 060 / 04 IEC/EN 60068-1

EN 50005

**Terminal designation:** EN 50005

**Wire connection:** 2 x 2.5 mm<sup>2</sup> solid or  
2 x 1.5 mm<sup>2</sup> stranded wire with sleeve  
DIN 46228

Insulation of wires or  
sleeve length: 10 mm

**Wire fixing:** Flat terminals with self lifting  
clamping piece IEC/EN 60999-1

**Fixing torque:** 0.8 Nm

**Mounting:** DIN rail IEC/EN 60715

**Weight** AC 220 V DC 24 V

AD 5999: 380 g 250 g

AD 5993: 360 g 220 g

## Dimensions

**Width x height x depth:** 45 x 77 x 127 mm

## Standard Types

AD 5999 AC 230 V 50/60 Hz

Article number: 0032370

• Nominal voltage  $U_N$ : AC 230 V

• Width: 45 mm

AD 5993 AC 230 V 50/60 Hz

Article number: 0032364

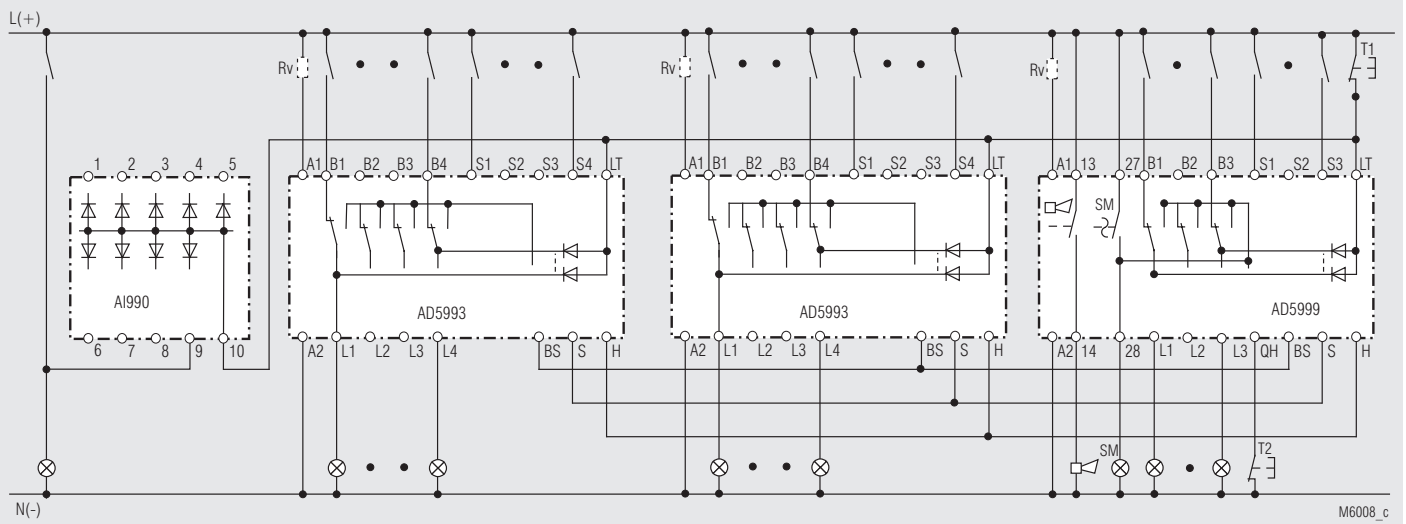
• Nominal voltage  $U_N$ : AC 230 V

• Width: 45 mm

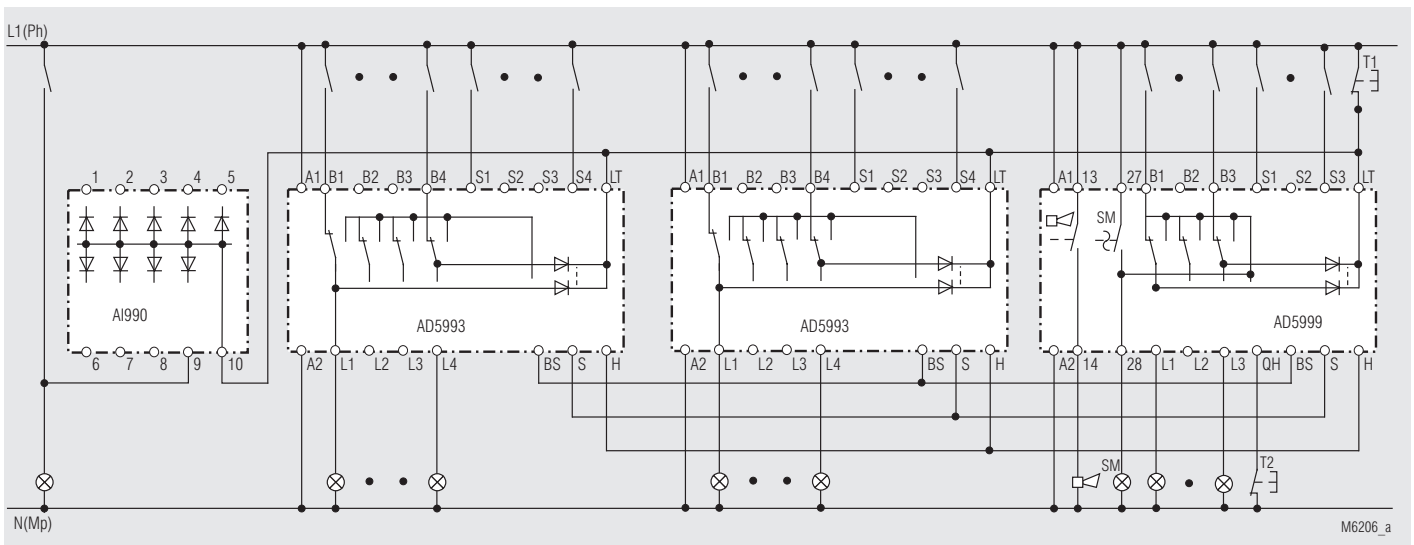
## Ordering Example

AD 5999 AC 230 V  
└──────────┬──────────┘  
            Nominal voltage  
            Type

## Connection Examples



AD 5999 - AD 5993 for operation at DC-voltage with additional lamp tester AI 990 or AI 990.10.



AD 5999 - AD 5993 for operation at AC-voltage with additional lamp tester AI 99

