Limit Switch

Vario - Limit Switch

AD-MK 350 GVD

Description

The limit switch AD-MK 350 GVD serves the switching of limiting values on analogue signals, transmitter signals and resistance thermometer. If a 2-wire transmitter is connected, it will be supplied directly through a galvanic separated and current limited supply voltage. The device has analogue inputs for current, voltage and resistance thermometer, which can be utilised alternatively. The AD-MK 350 GVD can switch maximally two independent limiting values with its two potential-free change-over contacts. The switching thresholds and operating modes can be freely parameterized. This can be carried out via the optional control panel AD-VarioControl or via the programming software AD-Studio. The status of the relevant relay is indicated via LED at the front or at the operating module AD-VarioControl.

Application

Switching limit values to active analog signals, 2- / 3-wire transmitters, and resistance thermometers, e.g. Flows, heights or temperatures.

Specific characteristics

- bipolar current input (+/- 0.5 mA to +/- 50 mA)
- bipolar voltage input (+/- 1 V to +/- 100 V)
- power supply of 2- / 3-wire transmitters
- two potential-free change-over contacts
- operating module as an accessory
- 23mm narrow housing with detachable terminal clamp

Business data

Order number

Vario - Limit Switch	AD-MK 350 GVD

Accessory (optional)

Operating module	AD-VarioControl
USB programming adapter	AD-VarioPass
Configuration software	AD-Studio

Information

Downloads

Tender text	mk350gvd.zip
Operation manual VarioControl	man-variocontrol-ad-en.pdf
STEP file	gvd+variocontrol.step

Technical specifications

Input current

Measuring range	-50 ... + 50 mA DC
Input resistance	40 Ohm
Resolution	16 Bit
Accuracy	0,1 % of full scale

Input voltage

Measuring range	-100 ... + 100 V DC
Input resistance	1 MOhm
Resolution	16 Bit
Accuracy	0,1 % of full scale

Transmitter supply

Off-load voltage	24,5 V
Voltage at 20mA	17,5 V
Current limit	~ 25 mA

Resistance thermometer inputs Pt100, Pt500, Pt1000 to DIN EN 60751

Measuring range	-200 ... +850 °C
Connection method	2-, 3- oder 4-wire system
Resolution	16 Bit
Accuracy	0,6 K
Smallest measuring spans	20 K
Max line resistance [1)]	10 Ohm/cable
Sensor supply	310 µA

[1)] With 2-conductor the line resistance comes as an offset into the measurement.

Resistance thermometer inputs Ni100, Ni500, Ni1000 to DIN EN 43760

Measuring range	-60 ... +230 °C
Connection method	2-, 3- oder 4-wire system
Resolution	16 Bit
Accuracy	0,6 K
Smallest measuring spans	20 K
Max line resistance [1)]	10 Ohm/cable
Sensor supply	310 µA

[1)] With 2-conductor the line resistance comes as an offset into the measurement.

Relay outputs A/B

Contact type	potential free changeover
Max. AC-breaking capacity	250 V AC, 2 A AC, 50Hz
Max. DC-breaking capacity	50 V DC, 2 A DC
Switching operations	
Mechanical	10^7
AC: 230V / 2A, cos(phi)=1	$6 * 10^5$
AC: 230V / 2A, cos(phi)=0,4	$2 * 10^5$
DC: 24V / 1A	$2 * 10^5$

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Transmission behaviour

Rise time	500 ms (output auf 90 %)
Temperature influence	+/- 100 ppm/K of full scale

Supply

Voltage range AC	50 ... 253 V AC, 50/60 Hz
Nominal voltage AC	230 V AC
Voltage range DC	20 ... 253 V DC
Nominal voltage DC	24 V DC
Power consumption AC / DC	4 VA / 2,4 W

Housing

Dimensions (WxHxD)	23x110x134 mm
With operating module (bxhxt)	23x110x138 mm
Type of protection	IP 20
Connection method	detachable terminal clamp
Terminals, wire cross section	2,5 mm² flex wire / 4 mm² one wire
Bolting torque terminals	0,5 Nm
Weight	~ 150 g
Manner of fastening	35 mm DIN rail 35mm

Environmental conditions

Ambient temperature	-10 ... 50 °C
Storage and transport	-10 ... 70 °C (no condensation)

EMC

Product family standard [1)]	EN 61326-1
Emitted interference	EN 55011, CISPR11 Cl. B, Gr. 1

[1)]During electromagnetic disturbance minor changes in output signal are possible.

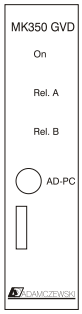
Electrical safety requirements

Product family standard	EN 61010-1
Overvoltage category	II
Pollution degree	2

Galvanic isolation, test voltages

Input/output	2,5 kV (1 min)
Signal/auxiliary voltage	3 kV (1 min)

Display and operating elements

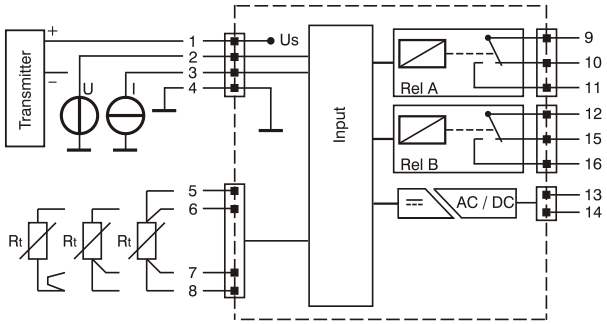


On: LED for operating display in green
on - normal operation
flashing - Signal failure, signal outside range limits
Rel: two LEDs for relays A and B in red
on - relay activated

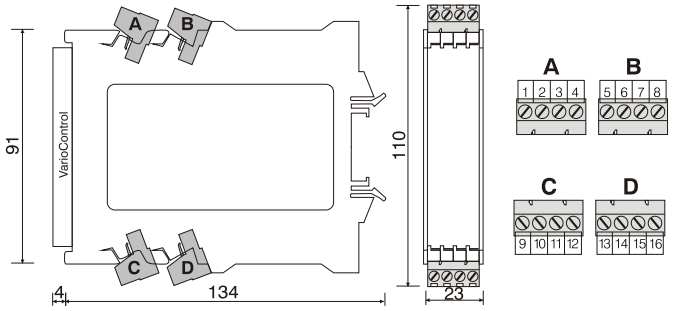
AD-PC: Communication interface for configuration by a PC

Communication interface for VarioControl

Block and wiring diagram



Dimensions



Modbus Communication

The optional AD-VarioConnect operating module has an RS-485 interface. The data is transferred via the Modbus RTU protocol, the AD-VarioConnect operating module represents a Modbus slave. Communication takes place according to the master-slave procedure and starts with a request from the master, e.g. from a PLC or a PC. Each bus participant must have a unique address. If a slave detects that its address has been addressed by the master, the slave always sends an answer. The slaves never communicate with each other. They are also not able to start a communication with the master.
The Modbus master can read out the individual registers of the AD-MK 350 GVD via the addresses.
The default standard data format is 19200,e,8,1 with slave address 1. These settings can be changed via the AD-VarioConnect operating module.

Start address	Number of registers	Name	Unit	Data type	read	write
Measured values:						
40607	2	Input signal	mA / V / Ohm	7	1	0
40609	2	Scaled input	°C / ?	7	1	0

Legend of the datatypes:

U08: 1	**S08:** 2	**U16:** 3	**S16:** 4	**U32:** 5	**S32:** 6	**float:** 7