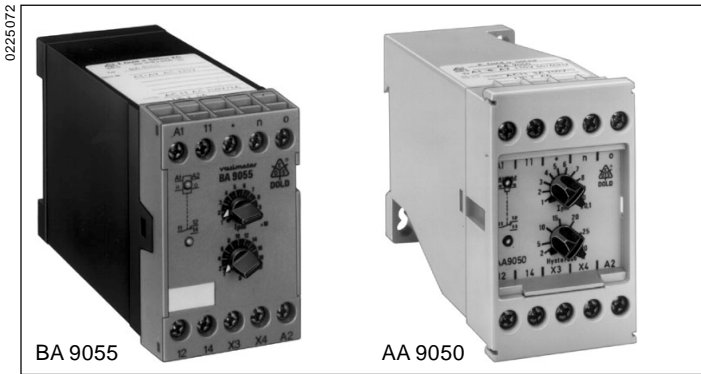
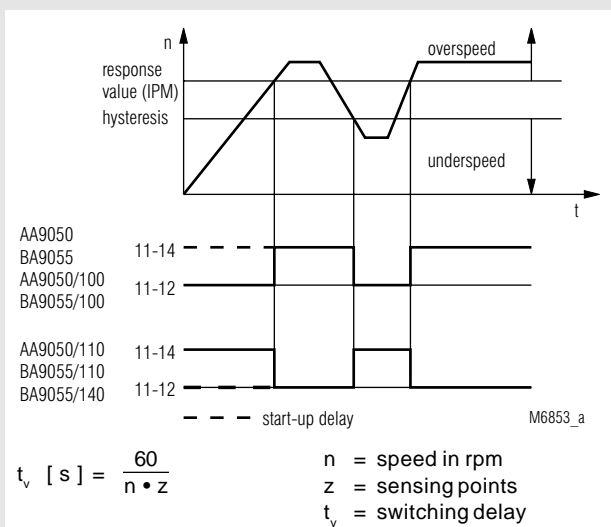


Speed monitor BA 9055, AA 9050 varimeter

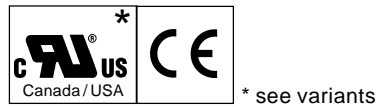


- According to IEC 255, EN 60255, VDE 0435 part 303
- Detection of
 - underspeed
 - overspeed
 - standstill
- Adjustable response value
- BA 9055 with adjustable start-up delay
- AA 9050 with adjustable hysteresis
- Width 45 mm

Function diagram



Approvals and marking



Application

Speed monitors are used in case where it is necessary not to exceed certain speed limits in order to protect people plants and products against damage. The Speed monitors are used on escalators, conveyors, transfer lines, elevators as well as plants where several drives with a certain speed have to work together.

Function

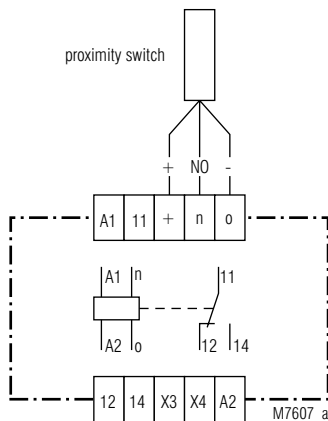
The measuring principle is to compare frequencies. With a proximity sensor the speed is converted to a speed proportional frequency. This frequency is compared to an internal adjustable frequency reference. If the measured frequency is higher then the reference the output relay is energised on an underspeed monitor or deenergised on an overspeed monitor. The output relay deenergises on an underspeed monitor if the speed goes under the setted hysteresis value. On the overspeed monitor the relay is energised. The reaction time is rather short, as the unit has no intergrating function. To calculate refer to formula in function diagram. The power supply for the proximity sensor is built into the unit. **The input is designed for pnp sensors.**

The speed monitor has an integrated start-up delay. The unit is delivered with a bridge between terminals X3-X4. The start-up delay is activated when the power supply is connected to A1-A2.

For the start-up time the output relay is energised. If no start-up delay is required, the bridge must be removed. The start-up delay can be activated also by external contacts connected to X3-X4.

The start-up delay normally is not required with overspeed monitoring. An LED indicates the connected power supply. A second LED indicates the state of the output relay.

Circuit diagram



BA 9055.11, AA 9050.11

Technical data

Input circuit

Input:	for proximity sensors, built in power supply DC 24 V, max. 40 mA
Setting range:	0,05 ... 0,5 lpm 10 ... 100 lpm 0,1 ... 1 lpm 50 ... 500 lpm 0,5 ... 5 lpm 100 ... 1 000 lpm 1 ... 10 lpm 500 ... 5 000 lpm 5 ... 50 lpm 1000 ... 10 000 lpm
	lpm = Impuls per minute

Min. pulse length:	1 ms
Max. frequency:	30 000 lpm
Setting:	infinite on relative scale
Setting accuracy:	≤ ± 3 %
Response value:	0,1 ... 1 of end of scale value
Hysteresis:	
BA 9055:	2 % of response value
AA 9050:	2 ... 30 % of response value
Accuracy:	≤ ± 1 %
Temperature influence:	≤ ± 0,1 % / °C

Technical data

Influence of auxiliary supply: $< \pm 0,5 \%$ at $0,8 \dots 1,1 U_N$

Start up delay

BA 9055: 1 ... 20 s
AA 9050: 10 s (up to 60 min. available)

Auxiliary circuit

Auxiliary voltage U_H : AC 24, 42, 110, 127, 230, 240 V
DC 24 V

Voltage range of U_H : $0,8 \dots 1,1 U_H$

Nominal consumption: $< 4 \text{ VA}$

Nominal frequency of U_H : 50 / 60 Hz

Output circuit

Contacts: 1 changeover contact
Thermal current I_{th} : 6 A
Switching capacity to AC 15: 5 A / AC 230 V EN 60 947-5-1
Permissible switching frequency: 6 000 switching cycles / h
Short circuit strength max. fuse rating: 4 A gL EN 60 947-5-1
Mechanical life: $> 30 \times 10^6$ switching cycles

General data

Operating mode: Continuous operation
Temperature range: $-20 \dots +60^\circ\text{C}$
Clearance and creepage distances
overvoltage category / contamination level: 4 kV / 2 IEC 60 664-1
EMC
Electrostatic discharge: 8 kV (air) EN 61 000-4-2
HF-irradiation: 10 V / m EN 61 000-4-3
Fast transients: 2 kV EN 61 000-4-4
Surge voltages between wires for power supply: 2 kV EN 61 000-4-5
between wire and ground: 4 kV EN 61 000-4-5
Interference suppression: Limit value class B EN 55 011
Degree of protection: Housing: IP 40 EN 60 529
Terminals: IP 20 EN 60 529
Housing: Thermoplastic with V0 behaviour according to UL subject 94
Vibration resistance: Amplitude 0,35 mm, frequency 10 ... 55 Hz, EN 60 068-2-6
20 / 060 / 04 EN 60 068-1
Climate resistance:
Terminal designation: EN 50 005
Wire connection: 2 x 2,5 mm² solid or 2 x 1,5 mm² stranded wire with sleeve
DIN 46 228-1/-2/-3/-4
Wire fixing: Flat terminals with self-lifting clamping piece EN 60 999
Screw mounting
AA 9050: 35 x 50 mm and 35 x 60 mm DIN 46 121
Mounting: DIN rail EN 50 022
Weight:
BA 9055: 410 g
AA 9050: 400 g

Dimensions

Width x height x depth

BA 9055: 45 x 74 x 124 mm
AA 9050: 45 x 77 x 127 mm

Standard type

BA 9055 AC 230 V 50/60 Hz 10 ... 100 lpm 1 ... 20 s

Article number: 0030731
• Output: 1 changeover contact
• Nominal voltage U_N : AC 230 V
• Setting range: 10 ... 100 lpm
• Width: 45 mm

AA 9050 AC 230 V 50/60 Hz 10 ... 100 lpm 10 s

Article number: 0022920 stock item
• Output: 1 changeover contact
• Nominal voltage U_N : AC 230 V
• Setting range: 10 ... 100 lpm
• Start up delay: 10 s
• Width: 45 mm

Variants

BA 9055, AA 9050: Standstill and underspeed monitoring with start up delay, closed circuit operation
overspeed monitoring with start up delay, open circuit operation with UL-approval

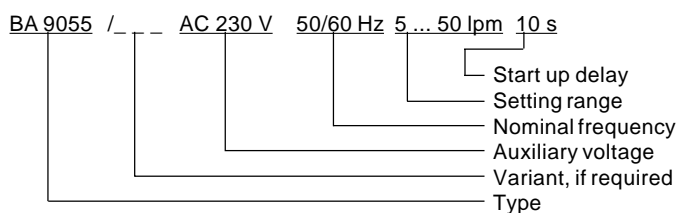
BA 9055/61:
BA 9055/100,
AA 9050/100: Standstill and underspeed monitoring without start up delay, closed circuit operation
overspeed monitoring without start up delay, open circuit operation

BA 9055/110,
AA 9050/110: Standstill and underspeed monitoring without start up delay, open circuit operation
overspeed monitoring without start up delay, closed circuit operation

BA 9055/140: Standstill and underspeed monitoring with start up delay, open circuit operation
overspeed monitoring with start up delay, closed circuit operation

Ordering example for variants

BA 9055 / AC 230 V 50/60 Hz 5 ... 50 lpm 10 s

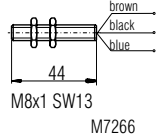
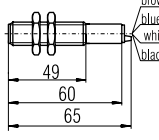
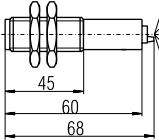
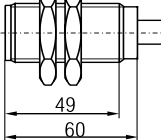


Start up delay
Setting range
Nominal frequency
Auxiliary voltage
Variant, if required
Type

Accessories

K 70-34: Cover for AA 9050

Proximity sensors

Type	NA 5001.01.10 pnp NA 5001.01.20 npn	NA 5002.01.34 pnp/npn	NA 5005.01.34 pnp/npn	NA 5010.01.10 pnp NA 5010.01.20 npn
Dimensions				
Enclosure	metal	metal	metal	metal
Sensing distance S_n	1 mm	2 mm	5 mm	10 mm
Switching frequency	5 000 Hz	1 000 Hz	300 Hz	200 Hz
Hysteresis	2 ... 10 %			
Repeat accuracy	5 %			
Voltage range	10 ... 30 V			
Residual ripple	< 10 %			
Continuous current	≤ 200 mA	≤ 100 mA	≤ 100 mA	≤ 400 mA
Output	.10 pnp NO .20 npn NO	.34 pnp NO + npn NO	.34 pnp NO + npn NO	.10 pnp NO .20 npn NO
Indication of output state	LED			
Ambient temperature	- 25 ... 70°C			
Temperature influence	10 %			
Degree of protection	IP 67			
Connection wire	2 m			
Fixing torque	4 Nm	15 Nm	40 Nm	100 Nm
Weight	45 g	70 g	120 g	270 g

Connection table BA 9055, AA 9050

Type	wire	Terminal on AA 9050 / BA 9055
NA 5001.01.10	brown +	+
	blue -	0
	black NO	n
NA 5002.01.34	brown +	+
	white +	+
NA 5005.01.34	blue -	0
	black NO	n
NA 5010.01.10	brown +	+
	blue -	0
	black NO	n

Connection table BA 9055 / _ _ 5

Type	wire	Terminal on BA 9055/_ _ 5
NA 5001.01.20	brown +	+
	blue -	0
	black NO	n
NA 5002.01.34	brown +	+
	white NO	n
NA 5005.01.34	blue -	0
	black -	0
NA 5010.01.20	brown +	+
	blue -	0
	black NO	n

Connection table BH 5932, BH 5932 / 00_

Type	wire	Terminal on BH 5932
NA 5001.01.20	brown +	+ 24 V
	blue -	0 V
	black NO	IN _A / IN _B
NA 5002.01.34	brown +	+ 24 V
	white NO	IN _A / IN _B
NA 5005.01.34	blue -	0 V
	black -	0 V
NA 5010.01.20	brown +	+ 24 V
	blue -	0 V
	black NO	IN _A / IN _B

Connection table BH 5932, BH 5932 / 01_

Type	wire	Terminal on BH 5932
NA 5001.01.10	brown +	+ 24 V
	blue -	0 V
	black NO	IN _A / IN _B
NA 5002.01.34	brown +	+ 24 V
	white +	+ 24 V
NA 5005.01.34	blue -	0 V
	black NO	IN _A / IN _B
NA 5010.01.10	brown +	+ 24 V
	blue -	0 V
	black NO	IN _A / IN _B