

EE55 Series

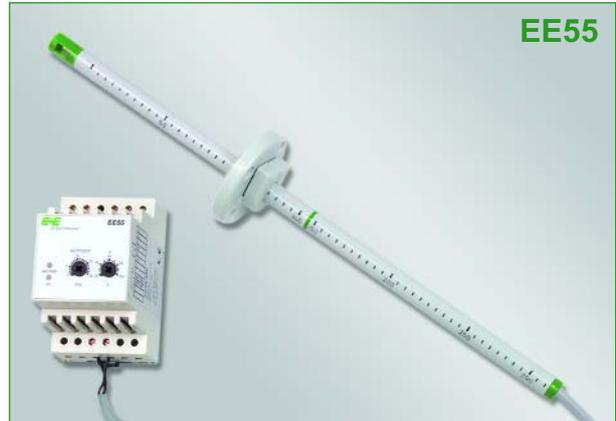
Air Velocity Switch for HVAC Applications

The EE55 air velocity switch is designed for standard HVAC applications with a switching threshold between 2 and 20 m/s (400...4000ft/min). It is based on the innovative E+E thin film sensor working on the hot film anemometer principle. This element is distinguished by its outstanding accuracy over the whole working range and its approved long term stability.

Moreover, the E+E sensor is much more insensitive to dust and dirt than other anemometer principles. This means high reliability and low maintenance costs.

EE55 consists of an interchangeable sensing probe and a relay unit suitable for panel mounting. The electronics integrated in the sensing probe allow a cable length up to 10m (32.8ft) to the relays unit and ensure high immunity to electromagnetic perturbations.

Low angular dependence and an extension tube allows cost-effective, easy positioning of the sensing probe in ducts with diameter between 50 and 630mm (1.9 and 24.8"). For smooth plant start-up there is the possibility to set the delay time between 20 and 100 s.



Typical Applications

HVAC control
environmental control

Features

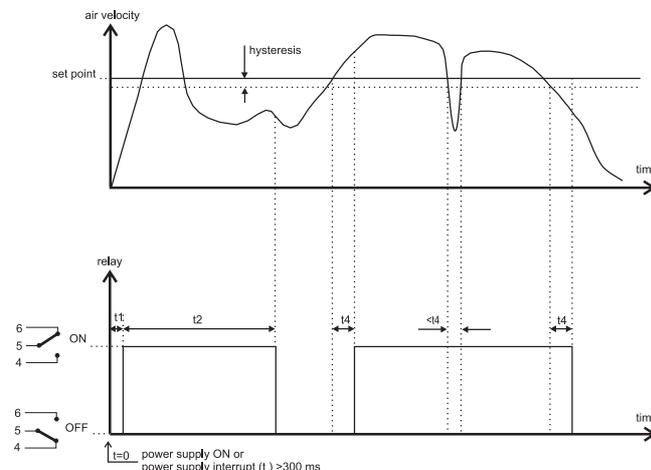
compact case size
interchangeable sensing probe
easy setting of threshold and preset time
remote sensing probe up to 10m (32.8ft)
easy electric wiring
easy installation

Working Principle

The sensing probe, which can be supplied with up to maximum 10m (32.8ft) cable, gives a signal to the relay module which is proportional to the air velocity. This value is compared to the threshold value set on the front panel of the air velocity switch. The relay is released if the threshold is reached or exceeded. To start without a hitch there are fixed and variable time steps integrated.

When switching on the EE55 or in case of short failure of the main supply > 300 ms (t_3) there is a delay of about 100 ms (t_1) till the relay is switched on. Independent of the true value the relays remain in this state for a delay time (t_2) (adjustable) between 20 and 100 s.

Only after that the air velocity switch reacts to the TRUE and RATED VALUE. The reaction time is limited by the response time (t_4) of the sensor probe which is about 2 s. The described function is related to continuous operation, which is reached after a warm-up phase of approx. 3 min after applying the supply voltage.



Technical Data

Measuring values

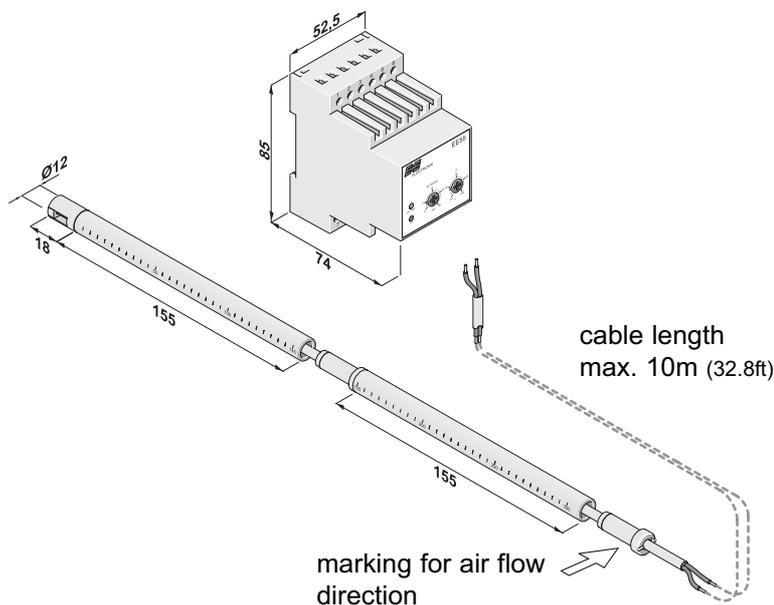
Working range threshold	2...20m/s (400...4000ft/min)
Setting accuracy	typ. $\pm 6\%$ of end value
Repeatability at 20°C (68°F)	$\pm 5\%$ of measuring value
Hysteresis	3% of measuring value, min. 0.05m/s (10ft/min)
Deviation by probe exchange	$\pm 5\%$ of measuring value (max.)
Temperature dependence	typ. 0.3 % / °C (typ. 0.17 % / °F)
Switching output (relays 250 V)	10 A for ohmic load 3 A for inductive load

General

Supply voltage			
Type A	SELV 24V AC/DC $\pm 10\%$		
Type B	230V AC		SELV = Safety Extra Low Voltage
Current consumption			
Type A	max. 85 mA DC	max. ~ 150 mA _{eff}	
Type B	max. 20 mA _{eff}		
Switching delay time (t_2)	adjustable 20 to 100 s		
Response time (t_4)	approx. 2 s		
Probe cable length	2.5m or 10m (8.2 or 32.8ft)		
Electrical connection	screw terminals up to 1.5 mm ² (AWG 16)		
Protection class			
sensor probe	Polycarbonat / IP20		
housing	Polycarbonat / IP30		
Electromagnetic compatibility	EN 50081-1 EN 61000-6-2	EN 61010-1	
Temperature range			
sensor probe	-30...80°C (-22...176°F)		
housing	-20...60°C (-4...140°F)		
storage	-30...60°C (-22...140°F)		

Dimensions (mm)

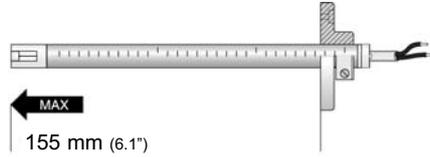
1 mm = 0.03937" / 1" = 25.4 mm



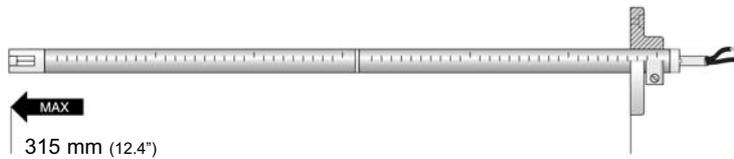
Depth of immersion

To adjust the probe length to the air duct dimensions the sensor probe consists of two parts (sensor head and extension tube). The extension tube should be used for duct diameters > 310 mm (12.2").

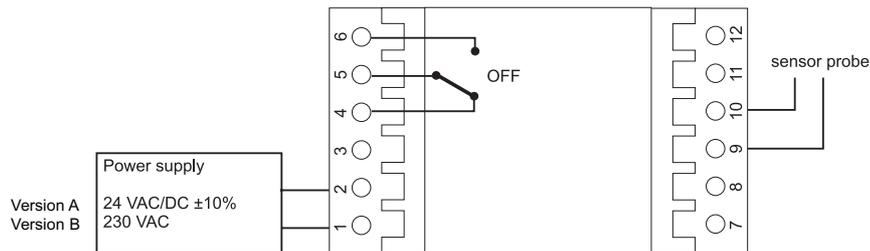
without extension tube:



with extension tube:



Connection Diagram



Ordering Guide

MODEL	POWER SUPPLY	PROBE CABLE LENGTH
air velocity switch (V)	24V DC/AC (A) 230V AC (B)	2.5m (8.2ft) (25) 10m (32.8ft) (100)
EE55-		

Order Example

EE55-VB100

model: velocity switch
 power supply: 230V AC
 probe cable length: 10m (32.8ft)

EE56 Series

Air Velocity Switch for low velocity

EE56 air velocity switch is designed for special laminar flow and HVAC applications with a switching threshold between 0.2 and 2m/s (39.5...400ft/min) It is based on the innovative E+E thin film sensor working on the hot film anemometer principle. This has an outstanding accuracy at very low air velocity, which is not possible for conventional anemometers with commercial temperature sensors or NTC bead thermistors. Moreover, the E+E sensor is much more insensitive to dust and dirt than all other anemometer principles. This means high reliability and low maintenance costs.



EE56 consists of an interchangeable sensing probe and a relay unit suitable for panel mounting. The electronics integrated in the sensing probe allow a cable length up to 10m (32.8ft) to the relays unit and ensure high immunity to electromagnetic perturbations.

Low angular dependence and an extension tube allows cost-effective, easy positioning of the sensing probe in ducts with diameter between 50 and 630mm (1.9 and 24.8"). For smooth plant start-up there is the possibility to set the delay time between 20 and 100 s.

Typical Applications

laminar flow control
clean room control

Features

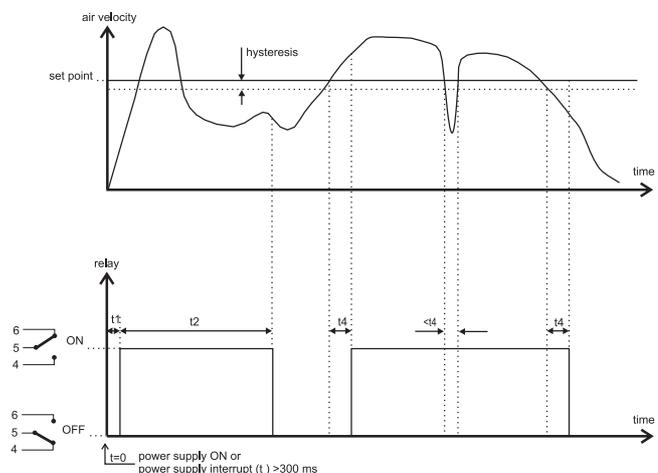
measurements down to "0" m/s
compact case size
interchangeable sensing probe
easy setting of threshold and preset time
remote sensing probe up to 10m (32.8ft)
easy electric wiring
easy installation

Working Principle

The sensing probe, which can be supplied with up to maximum 10m (32.8ft) cable, gives a signal to the relay module which is proportional to the air velocity. This value is compared to the threshold value set on the front panel of the air velocity switch. The relay is released if the threshold is reached or exceeded. To start without a hitch there are fixed and variable time steps integrated.

When switching on the EE55 or in case of short failure of the main supply > 300 ms (t_3) there is a delay of about 100 ms (t_1) till the relay is switched on. Independent of the true value the relays remain in this state for a delay time (t_2) (adjustable) between 20 and 100 s.

Only after that the air velocity switch reacts to the TRUE and RATED VALUE. The reaction time is limited by the response time (t_4) of the sensor probe which is about 2 s. The described function is related to continuous operation, which is reached after a warm-up phase of approx. 3 min after applying the supply voltage.



Technical Data

Measuring values

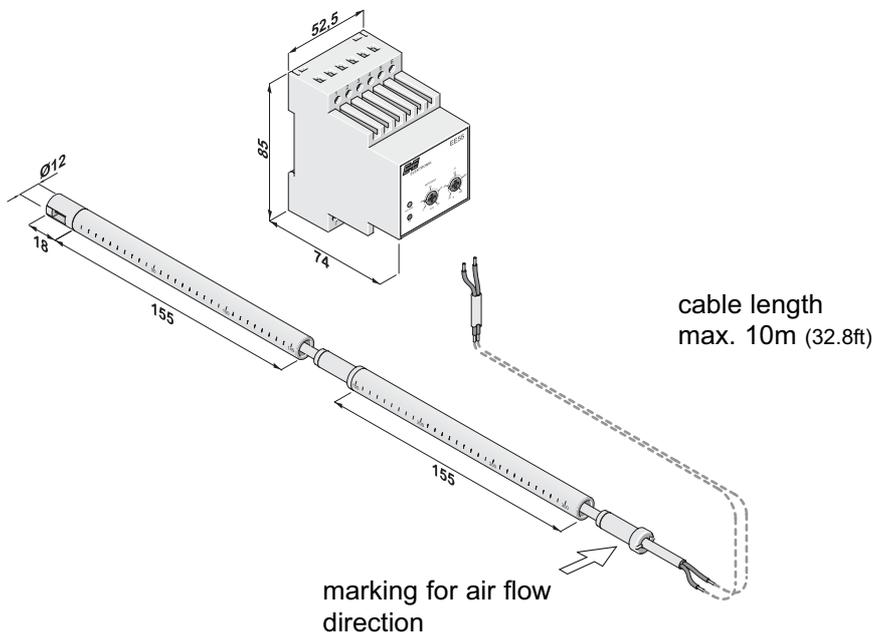
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Setting accuracy	typ. $\pm 6\%$ of end value
Repeatability at 20°C	$\pm 5\%$ of measuring value
Hysteresis	3 % of measuring value, min. 0.05m/s (10ft/min)
Deviation by probe exchange	$\pm 5\%$ of measuring value (max.)
Temperature dependence	typ. 0.3 % /°C (typ. 0.17 % / °F)
Switching output (relays 250 V)	10 A for ohmic load 3 A for inductive load

General

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Type A	max. 85 mA DC	max. ~ 150 mA _{eff}	
Type B	max. 20 mA _{eff}		
Switching delay time (t ₂)	adjustable 20 to 100 s		
Response time (t ₄)	approx. 2 s		
Probe cable length	2.5m or 10m (8.2 or 32.8ft)		
Electrical connection	screw terminals up to 1.5 mm ² (AWG 16)		
Protection class			
sensor probe	Polycarbonat / IP20		
housing	Polycarbonat / IP30		
Electromagnetic compatibility	EN 50081-1	EN 61010-1	CE
	EN 61000-6-2		
Temperature range			
sensor probe	-30...80°C (-22...176°F)		
housing	-20...60°C (-4...140°F)		
storage	-30...60°C (-22...176°F)		

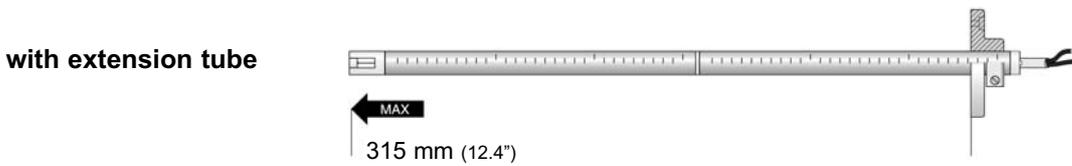
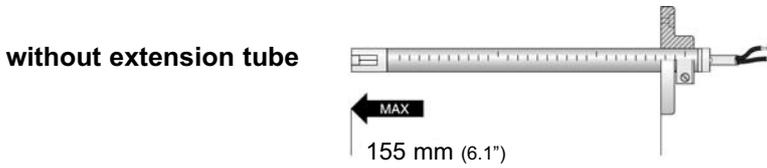
Dimensions (mm)

1 mm = 0.03937" / 1" = 25.4 mm

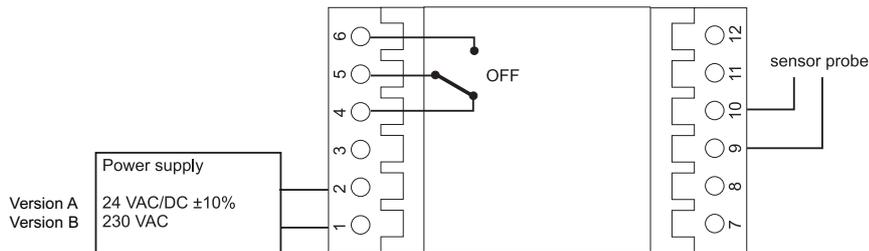


Depth of immersion

To adjust the probe length to the air duct dimensions the sensor probe consists of two parts (sensor head and extension tube). The extension tube should be used for duct diameters > 310 mm (12.2”).



Connection Diagram



Ordering Guide

MODEL	POWER SUPPLY	PROBE CABLE LENGTH
air velocity switch (V)	24V DC/AC (A) 230V AC (B)	2.5m (8.2ft) (25) 10m (32.8ft) (100)
EE56-		

Order Example

EE56-VA25

model: air velocity switch
power supply: 24V DC/AC
probe cable length: 2.5 m (8.2ft)