Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

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Monitoring Relays
Tachometer
Type SM 155

- **Tachometer relay**
- **Measuring ranges:**
  - **30 - 300 R.P.M.**
  - **200 - 2000 R.P.M.**
  - **1000 - 10000 R.P.M.**
- **Knob-adjustable set level**
- **Controlled by Namur/DIN 19234 sensor or metallic contact**
- **Connection for moving-coil instrument**
- **10 A SPDT output relay**
- **LED indication for relay ON**
- **AC or DC power supply**

Product Description

SM155 monitors the actual RPMs of a motor by a Namur/DIN 19234 sensor or a metallic contact.

Knob adjustable set level on relative scale.

Ordering key

SM 155 230 10K

- **Housing**
- **Function**
- **Output**
- **Type**
- **Power upply**
- **Measuring range**

Type Selection

Plug	Output	Measuring range	Supply: 24 VAC	Supply: 115 VAC	Supply: 230 VAC	Supply: 24 VDC
Circular	SPDT	30 - 300 R.P.M.	**SM 155 024 300**	**SM 155 115 300**	**SM 155 230 300**	**SM 155 724 300**
11 pins	SPDT	20 - 2000 R.P.M.	**SM 155 024 2K**	**SM 155 115 2K**	**SM 155 230 2K**	**SM 155 724 2K**
	SPDT	1000 - 10000 R.P.M.	**SM 155 024 10K**	**SM 155 115 10K**	**SM 155 230 10K**	**SM 155 724 10K**

Input Specifications

Input	
Through terminals:	
Metallic contact:	5, 6
Namur sensor:	6, 7
Measuring ranges	
Types:	
300:	30 to 300 R.P.M.
2K:	200 to 2000 R.P.M.
10K:	1000 to 10000 R.P.M.
Inversion	Interconnecting pins 8, 11
Short circuit current	
Pins 5, 6	5 mA
Pins 6, 7	10 mA
Connection cable	Can be extended as desired
Max resistance	100 Ω
Hysteresis	approx 3% of set value

Output Specifications

Output	SPDT relay
Instrument connection	Connection for moving-coil instrument
Through pins	8, 9, pin 9 positive
Full scale deflection	1 mA
Internal resistance	110 Ω
Rated insulation voltage	250 VAC
Contact ratings (AgCdO)	μ
Resistive loads AC 1	10A, 250 VAC
DC 1	1 A, 250 VDC
Small inductive loads AC 11	2.5 A, 230 VAC
DC 11	5 A, 24 VDC
Mechanical life	≥ 30 x 10^6 operations
Electrical life	≥ 2.5 x 10^5 operations (at max load)
Operating frequency	≤ 7200 operations/h
Dielectric strength	
Dielectric voltage	≥ 2 kVAC (rms)

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Supply Specifications

Power supply	Overvoltage cat. III
Rated operational voltage	(IEC 60664, IEC 60038)
Through terminals 2, 10	
024:	24 VAC ± 15%, 45 to 65 Hz
115:	115 VAC ± 15%, 45 to 65 Hz
230:	230 VAC ± 15%, 45 to 65 Hz
724:	24 VDC ± 15%
Dielectric voltage	2 kV
Transient protection	> 3kV
Rated operational power	
AC models	4 VA
DC models	2 W

General Specifications

Reaction time	Time between 2 pulses at the set value of the potentiometer
Accuracy of measurement	± 3%
Indication for	
Power supply ON	LED, green
Output relay ON	LED, red
Environment	
Degree of protection	IP 20
Operating temperature	-20 to +50°C
Storage temperature	-50 to +85°C
Housing dimensions	35 x 80 x 83 mm
Weight	
AC power supply	Approx. 200 g
DC power supply	Approx. 125 g
Approvals	UL, CSA
CE Marking	Yes

Mode of Operation/Level Setting

The relay is controlled by mechanical triggering, e.g. microswitch, reed relay, limit switch etc. (examples 1 and 2), or by electronic triggering, e.g. inductive or capacitive sensors (NAMUR/DIN 19234) (examples 3 and 4).

Examples 1 and 3
The relay operates when the number of R.P.M. exceeds the set value.
The relay releases when the number of R.P.M. is less than the set value. See hysteresis.

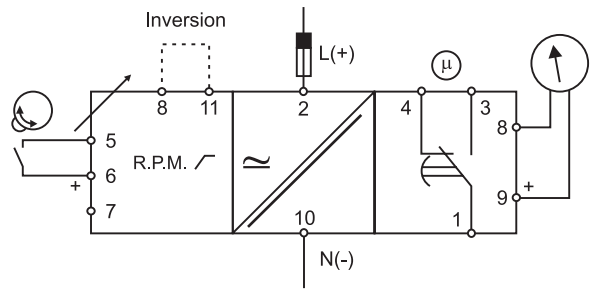
Example 2 and 4
By interconnecting pins 8 and 11 the relay function is inverted, i.e. the relay releases when the number of R.P.M. exceeds the set value.
The relay operates when the number of R.P.M. is less than the set value. See hysteresis.

Instrument connection
A moving-coil instrument with a scale calibrated in R.P.M. can be connected to the SM 155. The instrument has 1 mA full scale deflection.
The relay generates max. 8.2 V on the instrument terminals (pins 8 and 9) across an internal resistance of 8.2 kΩ in the relay. The ideal internal resistance of the instrument is 110 Ω. A deviation in the internal resistance of ± 100 Ω results in an error of ± 1%.

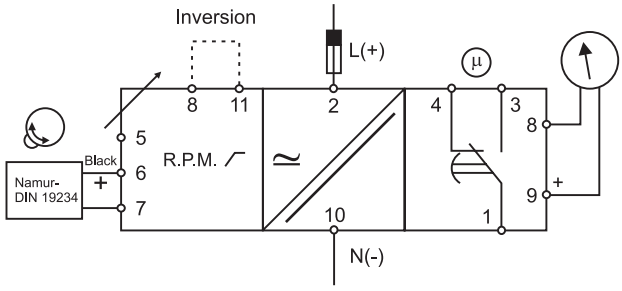
Level Setting
Knob adjustable on relative scale

Wiring Diagrams

Ex. 1, 2 - Mechanic triggering with metallic contact



Ex. 3, 4 - Electr. trig. with NAMUR/DIN 19234 sensor



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Operation Diagram