

# Specifications for Fans with Alarms

The alarm specifications vary depending on the type of alarm and fan.

Check the alarm specifications according to the alarm and fan type you use.

Specifications can also be referred to by the alarm specifications number shown on the specifications for each product.

## Stall Alarm, Electronic Alarm Type

An alarm is output when the fan stops while operating.

Alarm Specifications Number	<ul style="list-style-type: none"> <li>Models ◇ <b>MDS/MD Series: MDS1451-□LH, MDS1451-□L, MD925A-□LH, MD925A-□L, MD825B-□LH, MD825B-□L, MD625B-□LH, MD625B-□L, MDS510-□LH, MDS510-□L, MDS410-□LH, MDS410-□L</b></li> <li>◇ <b>MDE Series: MDE1451-□L2, MDE1225-□L</b></li> </ul>	<ul style="list-style-type: none"> <li>Example of Alarm Circuit Connection</li> </ul>								
	<ul style="list-style-type: none"> <li>Alarm Specifications</li> </ul> <table border="1"> <tr> <td>Alarm Activation Speed</td> <td>When locked</td> </tr> <tr> <td>Output Mode</td> <td>Open-collector output</td> </tr> <tr> <td>Output Condition</td> <td>Operation: L level (Internal transistor ON) When locked: H level (Internal transistor OFF)</td> </tr> <tr> <td>Maximum Rating</td> <td>Maximum applied voltage: 30 VDC max. Maximum current: 5 mA max.</td> </tr> <tr> <td>Delay Function</td> <td>Not built-in: External delay circuit is required to prevent alarm detection when starting the fan. The delay time should be at least 1 second.</td> </tr> </table>		Alarm Activation Speed	When locked	Output Mode	Open-collector output	Output Condition	Operation: L level (Internal transistor ON) When locked: H level (Internal transistor OFF)	Maximum Rating	Maximum applied voltage: 30 VDC max. Maximum current: 5 mA max.
Alarm Activation Speed	When locked									
Output Mode	Open-collector output									
Output Condition	Operation: L level (Internal transistor ON) When locked: H level (Internal transistor OFF)									
Maximum Rating	Maximum applied voltage: 30 VDC max. Maximum current: 5 mA max.									
Delay Function	Not built-in: External delay circuit is required to prevent alarm detection when starting the fan. The delay time should be at least 1 second.									

## Low-Speed Alarm, Electronic Alarm Type

An alarm is output when the fan speed drops to a specific level. Output mode is electronic output.

Alarm Specifications Number	<ul style="list-style-type: none"> <li>Models ◇ <b>MRS Series: MRS25-□M, MRS20-□M, MRS18-□MH, MRS18-□TM, MRS16-□TM</b></li> </ul>	<ul style="list-style-type: none"> <li>Example of Alarm Circuit Connection</li> </ul>								
	<ul style="list-style-type: none"> <li>Alarm Specifications</li> </ul> <table border="1"> <tr> <td>Alarm Activation Speed</td> <td>1800 ± 300 r/min</td> </tr> <tr> <td>Output Mode</td> <td>Open-collector output</td> </tr> <tr> <td>Output Condition</td> <td>Normal operation: L level (Internal transistor ON) Alarm output: H level (Internal transistor OFF)</td> </tr> <tr> <td>Maximum Rating</td> <td>Maximum applied voltage: 30 VDC max. Maximum current: 15 mA max.</td> </tr> <tr> <td>Delay Function</td> <td>Not built-in: External delay circuit is required to prevent alarm detection when starting the fan. The delay time should be at least 10 seconds.</td> </tr> </table>		Alarm Activation Speed	1800 ± 300 r/min	Output Mode	Open-collector output	Output Condition	Normal operation: L level (Internal transistor ON) Alarm output: H level (Internal transistor OFF)	Maximum Rating	Maximum applied voltage: 30 VDC max. Maximum current: 15 mA max.
Alarm Activation Speed	1800 ± 300 r/min									
Output Mode	Open-collector output									
Output Condition	Normal operation: L level (Internal transistor ON) Alarm output: H level (Internal transistor OFF)									
Maximum Rating	Maximum applied voltage: 30 VDC max. Maximum current: 15 mA max.									
Delay Function	Not built-in: External delay circuit is required to prevent alarm detection when starting the fan. The delay time should be at least 10 seconds.									

Alarm Specifications Number	<ul style="list-style-type: none"> <li>Models ◇ <b>MRS Series: MRS14-TTM</b></li> </ul>	<ul style="list-style-type: none"> <li>Example of Alarm Circuit Connection</li> </ul>										
	<ul style="list-style-type: none"> <li>Alarm Specifications</li> </ul> <table border="1"> <tr> <td>Alarm Activation Speed</td> <td>1800 ± 300 r/min</td> </tr> <tr> <td>Output Mode</td> <td>Open-collector output</td> </tr> <tr> <td>Output Condition</td> <td>Normal operation: L level (Internal transistor ON) Alarm output: H level (Internal transistor OFF)</td> </tr> <tr> <td>Maximum Rating</td> <td>Maximum applied voltage: 30 VDC max. Maximum current: 15 mA max.</td> </tr> <tr> <td>Power Supply for Driving Alarm Circuit</td> <td>5 VDC ± 5%</td> </tr> <tr> <td>Delay Function</td> <td>Built-in starting delay time: 25 sec. max. (The alarm function starts monitoring within 25 seconds after the power is turned on.)</td> </tr> </table>		Alarm Activation Speed	1800 ± 300 r/min	Output Mode	Open-collector output	Output Condition	Normal operation: L level (Internal transistor ON) Alarm output: H level (Internal transistor OFF)	Maximum Rating	Maximum applied voltage: 30 VDC max. Maximum current: 15 mA max.	Power Supply for Driving Alarm Circuit	5 VDC ± 5%
Alarm Activation Speed	1800 ± 300 r/min											
Output Mode	Open-collector output											
Output Condition	Normal operation: L level (Internal transistor ON) Alarm output: H level (Internal transistor OFF)											
Maximum Rating	Maximum applied voltage: 30 VDC max. Maximum current: 15 mA max.											
Power Supply for Driving Alarm Circuit	5 VDC ± 5%											
Delay Function	Built-in starting delay time: 25 sec. max. (The alarm function starts monitoring within 25 seconds after the power is turned on.)											

Alarm Specifications Number	<ul style="list-style-type: none"> <li>Models ◇ <b>MDS Series: MDS1225-□MH, MDS1225-□M</b></li> </ul>	<ul style="list-style-type: none"> <li>Example of Alarm Circuit Connection</li> </ul>								
	<ul style="list-style-type: none"> <li>Alarm Specifications</li> </ul> <table border="1"> <tr> <td>Alarm Activation Speed</td> <td>2100 ± 400 r/min</td> </tr> <tr> <td>Output Mode</td> <td>Open-collector output</td> </tr> <tr> <td>Output Condition</td> <td>Normal operation: L level (Internal transistor ON) Alarm output: H level (Internal transistor OFF)</td> </tr> <tr> <td>Maximum Rating</td> <td>Maximum applied voltage: 30 VDC max. Maximum current: 15 mA max.</td> </tr> <tr> <td>Delay Function</td> <td>Built-in starting delay time: 10 sec. max. (The alarm function starts monitoring within 10 seconds after the power is turned on.)</td> </tr> </table>		Alarm Activation Speed	2100 ± 400 r/min	Output Mode	Open-collector output	Output Condition	Normal operation: L level (Internal transistor ON) Alarm output: H level (Internal transistor OFF)	Maximum Rating	Maximum applied voltage: 30 VDC max. Maximum current: 15 mA max.
Alarm Activation Speed	2100 ± 400 r/min									
Output Mode	Open-collector output									
Output Condition	Normal operation: L level (Internal transistor ON) Alarm output: H level (Internal transistor OFF)									
Maximum Rating	Maximum applied voltage: 30 VDC max. Maximum current: 15 mA max.									
Delay Function	Built-in starting delay time: 10 sec. max. (The alarm function starts monitoring within 10 seconds after the power is turned on.)									

## Low-Speed Alarm, Contact Alarm Type

An alarm is output when the fan speed drops to a specific level. Output mode is contact output.

5	Alarm Specifications Number	<ul style="list-style-type: none"> <li>Models ◇ <b>MRS Series: MRS25-□B</b></li> <li>Alarm Specifications</li> </ul>	<ul style="list-style-type: none"> <li>Example of Alarm Circuit Connection</li> </ul>
	Alarm Activation Speed	1800±300 r/min	
	Output Mode	Relay output	
	Output Condition	Normal operation: Contact ON Alarm output: Contact OFF	
	Maximum Rating	Contact capacity Resistive load: max.10 VA (max. 100 V/max. 0.5 A)	
	Delay Function	Not built-in: External delay circuit is required to prevent alarm detection when starting the fan. The delay time should be at least 10 seconds.	

6	Alarm Specifications Number	<ul style="list-style-type: none"> <li>Models ◇ <b>MRS Series: MRS16-□TA</b></li> <li>Alarm Specifications</li> </ul>	<ul style="list-style-type: none"> <li>Example of Alarm Circuit Connection</li> </ul>
	Alarm Activation Speed	1800±300 r/min	
	Output Mode	Relay output	
	Output Condition	Normal operation: Contact OFF Alarm output: Contact ON	
	Maximum Rating	Contact capacity Resistive load: max.10 VA (max. 100 V/max. 0.5 A)	
	Delay Function	Not built-in: External delay circuit is required to prevent alarm detection when starting the fan. The delay time should be at least 10 seconds.	

7	Alarm Specifications Number	<ul style="list-style-type: none"> <li>Models ◇ <b>MBD Series: MBD12-24A, MBD10-24A, MBD8-24A</b></li> <li>Alarm Specifications</li> </ul>	<ul style="list-style-type: none"> <li>Example of Alarm Circuit Connection</li> </ul>
	Alarm Activation Speed	<b>MBD10-24A, MBD8-24A:</b> 1500±400 r/min <b>MBD12-24A:</b> 1300±400 r/min	
	Output Mode	Relay output	
	Output Condition	Normal operation: Contact ON Alarm output: Contact OFF	
	Maximum Rating	Maximum applied voltage: 30 VDC max. Maximum current: 30 mA max.	
	Delay Function	Built-in starting delay time: 10 sec. max. (The alarm function starts monitoring within 10 seconds after the power is turned on.)	

8	Alarm Specifications Number	<ul style="list-style-type: none"> <li>Models ◇ <b>MDS Series: MDS1751-24BH, MDS1751-24B</b></li> <li>Alarm Specifications</li> </ul>	<ul style="list-style-type: none"> <li>Example of Alarm Circuit Connection</li> </ul>
	Alarm Activation Speed	1800±400 r/min	
	Output Mode	Relay output	
	Output Condition	Normal operation: Contact ON Alarm output: Contact OFF	
	Maximum Rating	Maximum applied voltage: 30 VDC max. Maximum current: 30 mA max.	
	Delay Function	Built-in starting delay time: 10 sec. max. (The alarm function starts monitoring within 10 seconds after the power is turned on.)	

## Pulse Sensor Type

Two pulses are output per revolution of the fan. Fan speed is monitored as the host controller, etc., reads the output pulses. This function helps you set a desired output speed for alarm activation.

Alarm Specifications Number	<ul style="list-style-type: none"> <li>Models ◇ <b>MDS/MD Series: MDS1751-24SH, MDS1751-24S, MD925A-□SH, MD925A-□S, MD825B-□SH, MD825B-□S, MD625B-□SH, MD625B-□S</b></li> <li>◇ <b>MBD Series: MBD10-□S, MBD8-□S</b></li> </ul>						
9	<ul style="list-style-type: none"> <li>Alarm Specifications</li> </ul>						
	<table border="1"> <tr> <td>Output Pulse</td> <td>Two pulses per fan revolution</td> </tr> <tr> <td>Output Mode</td> <td>Open-collector output</td> </tr> </table>	Output Pulse	Two pulses per fan revolution	Output Mode	Open-collector output		
	Output Pulse	Two pulses per fan revolution					
Output Mode	Open-collector output						
<table border="1"> <tr> <td rowspan="2">Output Condition</td> <td> <ul style="list-style-type: none"> <li>Normal Operation</li> </ul> </td> <td> <ul style="list-style-type: none"> <li>When Locked</li> </ul> </td> </tr> <tr> <td> <math display="block">\frac{T}{4} = T1 \sim T4 = \frac{60}{4N} \text{ [s]} \quad N: \text{ Speed [r/min]}</math> <math display="block">\text{Pulse width duty} = \frac{T1}{T1+T2} = 50 \pm 10\%</math> </td> <td></td> </tr> <tr> <td>Maximum Rating</td> <td>                     Maximum applied voltage: 30 VDC max.                      Maximum current I<sub>c</sub>:  <b>MD925A-□SH, MD925A-□S, MD825B-□SH, MD825B-□S, MD625B-□SH, MD625B-□S: 5 mA max.</b>  <b>MDS1751-24SH, MDS1751-24S, MBD Series: 10 mA max.</b> </td> </tr> </table>	Output Condition	<ul style="list-style-type: none"> <li>Normal Operation</li> </ul>	<ul style="list-style-type: none"> <li>When Locked</li> </ul>	$\frac{T}{4} = T1 \sim T4 = \frac{60}{4N} \text{ [s]} \quad N: \text{ Speed [r/min]}$ $\text{Pulse width duty} = \frac{T1}{T1+T2} = 50 \pm 10\%$		Maximum Rating	Maximum applied voltage: 30 VDC max. Maximum current I <sub>c</sub> : <b>MD925A-□SH, MD925A-□S, MD825B-□SH, MD825B-□S, MD625B-□SH, MD625B-□S: 5 mA max.</b> <b>MDS1751-24SH, MDS1751-24S, MBD Series: 10 mA max.</b>
Output Condition		<ul style="list-style-type: none"> <li>Normal Operation</li> </ul>	<ul style="list-style-type: none"> <li>When Locked</li> </ul>				
	$\frac{T}{4} = T1 \sim T4 = \frac{60}{4N} \text{ [s]} \quad N: \text{ Speed [r/min]}$ $\text{Pulse width duty} = \frac{T1}{T1+T2} = 50 \pm 10\%$						
Maximum Rating	Maximum applied voltage: 30 VDC max. Maximum current I <sub>c</sub> : <b>MD925A-□SH, MD925A-□S, MD825B-□SH, MD825B-□S, MD625B-□SH, MD625B-□S: 5 mA max.</b> <b>MDS1751-24SH, MDS1751-24S, MBD Series: 10 mA max.</b>						
	<ul style="list-style-type: none"> <li>Example of Alarm Circuit Connection</li> </ul>						

Alarm Specifications Number	<ul style="list-style-type: none"> <li>Models ◇ <b>MDS Series: MDS1451-□SH, MDS1451-□S</b></li> </ul>						
10	<ul style="list-style-type: none"> <li>Alarm Specifications</li> </ul>						
	<table border="1"> <tr> <td>Output Pulse</td> <td>Two pulses per fan revolution</td> </tr> <tr> <td>Output Mode</td> <td>Open-collector output</td> </tr> </table>	Output Pulse	Two pulses per fan revolution	Output Mode	Open-collector output		
	Output Pulse	Two pulses per fan revolution					
Output Mode	Open-collector output						
<table border="1"> <tr> <td rowspan="2">Output Condition</td> <td> <ul style="list-style-type: none"> <li>Normal Operation</li> </ul> </td> <td> <ul style="list-style-type: none"> <li>When Locked</li> </ul> </td> </tr> <tr> <td> <math display="block">\frac{T}{4} = T1 \sim T4 = \frac{60}{4N} \text{ [s]} \quad N: \text{ Speed [r/min]}</math> <math display="block">\text{Pulse width duty} = \frac{T1}{T1+T2} = 50 \pm 10\%</math> </td> <td></td> </tr> <tr> <td>Maximum Rating</td> <td>                     Maximum applied voltage: 30 VDC max.                      Maximum current: 5 mA max.                 </td> </tr> </table>	Output Condition	<ul style="list-style-type: none"> <li>Normal Operation</li> </ul>	<ul style="list-style-type: none"> <li>When Locked</li> </ul>	$\frac{T}{4} = T1 \sim T4 = \frac{60}{4N} \text{ [s]} \quad N: \text{ Speed [r/min]}$ $\text{Pulse width duty} = \frac{T1}{T1+T2} = 50 \pm 10\%$		Maximum Rating	Maximum applied voltage: 30 VDC max. Maximum current: 5 mA max.
Output Condition		<ul style="list-style-type: none"> <li>Normal Operation</li> </ul>	<ul style="list-style-type: none"> <li>When Locked</li> </ul>				
	$\frac{T}{4} = T1 \sim T4 = \frac{60}{4N} \text{ [s]} \quad N: \text{ Speed [r/min]}$ $\text{Pulse width duty} = \frac{T1}{T1+T2} = 50 \pm 10\%$						
Maximum Rating	Maximum applied voltage: 30 VDC max. Maximum current: 5 mA max.						
	<ul style="list-style-type: none"> <li>Example of Alarm Circuit Connection</li> </ul>						

