Solid State Timers
Type F

Class 9050

CATALOG CONTENTS

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Solid State Timers, Type F
Solid State Timers, Type F
Product Description

Class 9050 Type F solid state timing relays are designed to provide the versatility needed to meet the needs of almost any timing application. Combining the accuracy of solid state timing and the dependability of easy to use hard contact outputs, Class 9050 Type F timing relays provide the best of solid state and electro-mechanical timers.

1. Standard Industrial Control Relay Mounting
2. Removable Timer Cover Protects Time Delay and Mode Setting.
3. LED Timing Indicator
4. Convertible Time Delay Mode Shows Through Cover
5. One N.O. and one N.C. Timed NEMA B150 Hard Output Contacts (10 Ampere Continuous)
6. Terminals Clearly Marked
7. Five Timing Ranges from 0.05 Seconds to 10 Hours
8. Marking Area (Type FT Only)
9. Self-Lifting Pressure Wire Connectors
10. Optional Instantaneous NEMA B150 Hard Output Contacts (10 Ampere Continuous) — Types FS & FT only

Type FS, FSR, and FT timing relays feature solid state accuracy and the flexibility and isolation of hard contacts output. Type FS and FT timers offer convertible On-Off Delay and timing range of up to 10 hours. Timing indication is provided by an LED that flashes during timing, glows steadily after timing and is off when the timer is de-energized.

The Type FSR Repeat Cycle timer provides two dials for separately adjustable On-Off Delay times. An indicating light is on when the output relay is energized.
Solid State Timers, Type F
Application and General Information

Type FS —
Solid State Timing Relay
• Industrial Housing
• IN/OUT Wiring
• Nonreplaceable Output Contacts
•Convertible ON/OFF Delay
• 1 N.O. & 1 N.C. Instantaneous Contacts Available
• Five Different Timing Ranges
• Transient Protection
• Status Indicator

Type FSR —
Repeat Cycle Timing Relay
• Industrial Housing
• Separately Adjustable ON and OFF Times
• May Take the Place of 2 Separate Timers
• IN/OUT Wiring
• Nonreplaceable Output Contacts
• Five Different Timing Ranges
• Transient Protection
• Status Indicator

Type FT —
Solid State Timing Relay
• Industrial Housing
• Replaceable Output Contacts
• Automotive Approval
• Straight Through Wiring
• Convertible ON/OFF Delay
• 1 N.O. & 1 N.C. Instantaneous Contacts Available
• Captive Terminal Screws
• Time Delay Adjustment Lock Nut
• Five Different Timing Ranges
• Transient Protection
• Status Indicator

Types FS, FSR, and FT:
UL File CCN: E42259 NKCR

Types FS and FSR:
UL File Class: LR53531-12 321103

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TIMING MODES

On Delay

When control power is applied, the time delay begins. At the end of the time delay, the output contacts energize. To reset, remove control power.

Off Delay

Control power is applied continuously. When the control switch is closed, the output contacts energize. Reopening the control switch begins the time delay. At the end of the time delay, the output contacts de-energize.

Repeat Cycle

When control power is applied, the T1 off-time begins. At the end of the T1 off-time, the output contacts energize and the T2 on-time begins. At the end of the T2 on-time, the output contact de-energizes and the T1 off-time begins again. This cycle will continue until control power is removed.

Timer Operating Status Table

<table>
<thead>
<tr>
<th>Timing Mode</th>
<th>Timing Cycle Status</th>
<th>Initiating Contact</th>
<th>Indicating Light</th>
<th>Time Delay N.O. Contact</th>
<th>Inst. N.O. Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>On Delay</td>
<td>Before Timing</td>
<td>Open</td>
<td>Off</td>
<td>Open</td>
<td>Open</td>
</tr>
<tr>
<td></td>
<td>During Timing</td>
<td>Closed</td>
<td>Flashing</td>
<td>Open</td>
<td>Closed</td>
</tr>
<tr>
<td></td>
<td>After Timing</td>
<td>Closed</td>
<td>On</td>
<td>Closed</td>
<td>Closed</td>
</tr>
<tr>
<td>Off Delay</td>
<td>Before Timing</td>
<td>Closed</td>
<td>On</td>
<td>Closed</td>
<td>Closed</td>
</tr>
<tr>
<td></td>
<td>During Timing</td>
<td>Open</td>
<td>Flashing</td>
<td>Closed</td>
<td>Open</td>
</tr>
<tr>
<td></td>
<td>After Timing</td>
<td>Open</td>
<td>Off</td>
<td>Open</td>
<td>Open</td>
</tr>
<tr>
<td>Repeat Cycle</td>
<td>Before Timing</td>
<td>Open</td>
<td>Off</td>
<td>Open</td>
<td>N.A.</td>
</tr>
<tr>
<td></td>
<td>During Timing</td>
<td>Closed</td>
<td>On</td>
<td>Closed</td>
<td>N.A.</td>
</tr>
</tbody>
</table>
Solid State Timers, Type F
Specifications

Contact Ratings

<table>
<thead>
<tr>
<th></th>
<th>AC Rating (120 Vac)</th>
<th>DC Rating (24 Vdc)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NEMA B 150</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inductive</td>
<td>Resistive</td>
</tr>
<tr>
<td></td>
<td>35% Power Factor</td>
<td>75% Power Factor</td>
</tr>
<tr>
<td>Make Amps</td>
<td>30</td>
<td>3</td>
</tr>
<tr>
<td>Break VA</td>
<td>3600</td>
<td>3</td>
</tr>
<tr>
<td>Continuous Amps</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Make or Break Amps</td>
<td>7</td>
<td>7</td>
</tr>
</tbody>
</table>

Dial
Marked in percent of maximum time delay.

Surface Mounting Requirements
Use two #8-32 mounting screws. The Type F timers also mount on 8501 Type XM mounting track.

Input Compatibility
The Type F timers are not compatible with 2-wire AC input sensors. A hard contact relay (i.e., general purpose relay) must be interposed.

Replacements Output Relays
Class 9998 Type TR1 used for the Class 9050 Type FT timer only.

Enclosure
Separately packed NEMA Type 1 sheet steel enclosure. Class 9991 Type UE7.

Repeat Accuracy:
±1% plus ±10 ms at constant voltage and temperature. ±3% plus ±10 ms over specified voltage and temperature range.

Reset Time:
On Delay: 50 ms. Off Delay: 50 ms. Repeat Cycle: Not applicable.

Operating Voltage:
Dual rated 120V 60Hz and 110V 50 Hz CONTINUOUS POWER IS REQUIRED (L1-L2 permanently connected to ac supply).

Voltage Range:
+10%, -15% of nominal.

Burden:
5.5VA maximum.

Operating Temperature Range:
-29°C to +60°C (-20°F to 140°F)

Terminals:
Self-lifting pressure wire connectors will accept up to two #12, #14 or #16 solid or stranded wires. The terminals will accept ring lugs or spade lugs up to 5/16 inch wide.
### APPROXIMATE DIMENSIONS

![Approximate Dimensions Diagram]

### ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Mode of Operation</th>
<th>Number of Contacts</th>
<th>Timing Range</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Timed</td>
<td>Instantaneous</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N.O.</td>
<td>N.C.</td>
<td>N.O.</td>
</tr>
<tr>
<td>Convertible</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>On-Off</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delay (Timers are shipped</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>in the On Delay</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mode)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Repeat</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Cycle</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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</tbody>
</table>

### TYPICAL ELEMENTARY DIAGRAM

![Typical Elementary Diagram]

### WIRING DIAGRAM

#### Type FT

![Wiring Diagram Type FT]

#### Type FS and FSR

![Wiring Diagram Type FS and FSR]