Integrated Motor Protection for High-Feature Applications

SIRIUS 3RB24 Solid-State Overload Relays with Complete Starter Functionality via IO-Link

The new SIRIUS 3RB24 solid-state overload relay for IO-Link offers real communication advantages: In addition to the tried-and-tested characteristics of the SIRIUS 3RB22 solid-state overload relay, the new overload relay for IO-Link allows for, amongst others, the read-out of current values, diagnostics and locally set parameters. As part of the SIRIUS modular system and in combination with contactors, the overload relay can also be employed as a direct-on-line, reversing and star-delta starter. The SIRIUS 3RB24 overload relay also supports the assembly of compact motor starters for current ratings up to 820 A and their connection to the higher-level control via IO-Link.

Highlights

- Full starter functionality (direct-on-line, reversing and star-delta) in combination with SIRIUS 3RT contactors
- Read-out of comprehensive diagnostic information such as overload, wire break, ground fault, etc.
- Read-out of current values
- Read-out of all assigned parameters (e.g. for your system documentation)
- Direct voltage supply via IO-Link (24 V DC)
- Trip classes 5, 10, 20, 30 (adjustable) offer solutions for normal and heavy-duty start-up
- Full motor protection thanks to connection of a Positive Temperature Coefficient thermistor sensor (thermistor motor protection)
- Modular device concept consisting of current detection and evaluation module
- Maximum flexibility with application of the optional operator panel
- Compliance with all relevant standards and approvals worldwide (also ATEX certification for explosive motors)

SIRIUS Overload Relays

www.usa siemens com/sirius-innovations
Starter Combinations also for Large Frame Sizes

Communication-capable connection to the control via IO-Link

The starter combination typically consists of the following components:

- one or more SIRIUS 3RT contactors ① (for direct-on-line, reversing or star-delta combination),
- a SIRIUS 3RB29 current detection module ②, and
- the SIRIUS 3RB24 solid-state overload relay for IO-Link ③.

With this starter combination, currents of up to 820 A can be covered; the IO-Link connection facilitates communication with the superior control.

① Contactor
② Current measuring module
③ Overload relay for IO-Link
Technology in Detail

① LED “device/IO-Link”
This LED provides information on the current device state and IO-Link communication.

② Red LED “ground fault”
This LED indicates a ground-fault tripping event, e.g. due to humidity, condensation water, insulation damage, etc.

③ Red LED “thermistor”
This LED indicates a thermistor tripping event.

④ Red LED “overload”
Red continuous lighting of this LED indicates an overload tripping event. Red flashing of this LED indicates a pending tripping event (overload warning).

⑤ Rotary switches for motor current and trip class setting
These switches allow for easy setting of the device’s motor current and the required trip class – depending on the start-up conditions.

⑥ Selection switch for manual/automatic reset
This switch offers the choice between manual and automatic reset.

⑦ Test/reset button
This button enables the testing of all important device components and functions. In addition, with manual reset, device resetting after a tripping event is supported. Alternatively, a reset can be realized automatically, remotely (integrated remote reset) or by means of communication.

⑧ Connection terminals (removable terminal block)
Thanks to the terminals’ generous design, they support the connection of two conductors with different cross-sections for the auxiliary, control and sensor circuits (alternatively possible with spring-loaded connection system).

⑨ Operator Panel Interface
This interface allows for easy connection of the optional 3RA6935 operator panel for on-site operation.

⑩ Current detection module
This module detects the actual motor current and is connected to the 3RB24 via a connecting cable (3RB29 87).

<table>
<thead>
<tr>
<th>Size</th>
<th>Adjustment range A</th>
<th>Order No. current detection module</th>
<th>Order No. connecting cable</th>
<th>Order No. evaluation module</th>
<th>Order No. accessories (optional)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S00/S0</td>
<td>0.3 ... 3</td>
<td>3RB29 06-2BG1*</td>
<td>3RB29 87-2B</td>
<td>3RB24 83-4AA1</td>
<td>3RA69 35-0A</td>
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<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>(optional operator panel for on-site operation)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>UF79 ± ±-OBA00-0</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(connecting cable round)</td>
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<tr>
<td>S2/S3</td>
<td>2.4 ... 25</td>
<td>3RB29 06-2DG1*</td>
<td>3RB29 87-2B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S2/S3</td>
<td>10 ... 100</td>
<td>3RB29 06-2JG1*</td>
<td>3RB29 87-2B</td>
<td></td>
<td></td>
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<tr>
<td>S6</td>
<td>20 ... 200</td>
<td>3RB29 56-2TG2*</td>
<td>3RB29 87-2D</td>
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<td></td>
</tr>
<tr>
<td>S6</td>
<td></td>
<td>3RB29 56-2TH2</td>
<td>3RB29 87-2D</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S10/S12</td>
<td>63 ... 630 (820)</td>
<td>3RB29 66-2WH2</td>
<td>3RB29 87-2D</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Equipped with straight-through transformer

1) Screw-type connection
2) Spring-loaded connection
Typical Application with IO-Link Environment

With the new IO-Link standard, you will benefit from your motor starter’s connection to the superior control and therefore its integration in your automation environment, e.g. STEP 7.

As the SIRIUS 3RB24 solid-state overload relay supports the transmission of analog process variables like currents, your system processes can be optimized. This allows, amongst others, for the realization of load monitoring.

**Further advantages:**
Integrated diagnostic functions in the feeder increase system availability. And the readable parameter assignment supports easy system documentation.

**Exemplary assembly with optional 3RA69 35-0A operator panel**

The optional 3RA69 operator panel enables on-site control and monitoring. Overload function parameters will exclusively be assigned on the device.