



Direct starter, 3RM1, 500 V, 0 - 0.12 kW, 0.1 - 0.5 A, 24 V DC, spring-type terminals

|                          |                                     |
|--------------------------|-------------------------------------|
| product brand name       | SIRIUS                              |
| product category         | Motor starter                       |
| product designation      | Direct-on-line starter              |
| design of the product    | with electronic overload protection |
| product type designation | 3RM1                                |

### General technical data

|                                                                                                |                                                 |
|------------------------------------------------------------------------------------------------|-------------------------------------------------|
| trip class                                                                                     | CLASS 10A                                       |
| equipment variant according to IEC 60947-4-2                                                   | 3                                               |
| product function                                                                               | Direct-on-line starter                          |
| <ul style="list-style-type: none"> <li>intrinsic device protection</li> </ul>                  | Yes                                             |
| <ul style="list-style-type: none"> <li>for power supply reverse polarity protection</li> </ul> | No                                              |
| suitability for operation device connector 3ZY12                                               | Yes                                             |
| insulation voltage rated value                                                                 | 500 V                                           |
| overvoltage category                                                                           | III                                             |
| surge voltage resistance rated value                                                           | 6 kV                                            |
| maximum permissible voltage for safe isolation                                                 |                                                 |
| <ul style="list-style-type: none"> <li>between main and auxiliary circuit</li> </ul>           | 500 V                                           |
| <ul style="list-style-type: none"> <li>between control and auxiliary circuit</li> </ul>        | 250 V                                           |
| shock resistance                                                                               | 6g / 11 ms                                      |
| vibration resistance                                                                           | 1 ... 6 Hz, 15 mm; 20 m/s <sup>2</sup> , 500 Hz |
| operating frequency maximum                                                                    | 1 1/s                                           |
| mechanical service life (operating cycles) typical                                             | 30 000 000                                      |
| reference code according to IEC 81346-2                                                        | Q                                               |
| Substance Prohibitance (Date)                                                                  | 03/01/2017                                      |
| product function                                                                               |                                                 |
| <ul style="list-style-type: none"> <li>direct start</li> </ul>                                 | Yes                                             |
| <ul style="list-style-type: none"> <li>reverse starting</li> </ul>                             | No                                              |
| product function short circuit protection                                                      | No                                              |

### Electromagnetic compatibility

|                                                                                                               |                                                                |
|---------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| EMC emitted interference according to IEC 60947-1                                                             | class A                                                        |
| EMC immunity according to IEC 60947-1                                                                         | Class A                                                        |
| conducted interference                                                                                        |                                                                |
| <ul style="list-style-type: none"> <li>due to burst according to IEC 61000-4-4</li> </ul>                     | 3 kV / 5 kHz                                                   |
| <ul style="list-style-type: none"> <li>due to conductor-earth surge according to IEC 61000-4-5</li> </ul>     | 2 kV                                                           |
| <ul style="list-style-type: none"> <li>due to conductor-conductor surge according to IEC 61000-4-5</li> </ul> | 1 kV                                                           |
| <ul style="list-style-type: none"> <li>due to high-frequency radiation according to IEC 61000-4-6</li> </ul>  | 10 V                                                           |
| field-based interference according to IEC 61000-4-3                                                           | 10 V/m                                                         |
| electrostatic discharge according to IEC 61000-4-2                                                            | 4 kV contact discharge / 8 kV air discharge                    |
| conducted HF interference emissions according to                                                              | Class B for the domestic, business and commercial environments |

|                                                                                            |                                                                |
|--------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| <b>CISPR11</b><br><b>field-bound HF interference emission according to CISPR11</b>         | Class B for the domestic, business and commercial environments |
| <b>Safety related data</b>                                                                 |                                                                |
| <b>protection class IP on the front according to IEC 60529</b>                             | IP20                                                           |
| <b>touch protection on the front according to IEC 60529</b>                                | finger-safe                                                    |
| <b>Main circuit</b>                                                                        |                                                                |
| <b>number of poles for main current circuit</b>                                            | 3                                                              |
| <b>design of the switching contact</b>                                                     | Hybrid                                                         |
| <b>design of the switching contact as NO contact for signaling function</b>                | OUT, electronic, 24 V DC, 15 mA                                |
| <b>adjustable current response value current of the current-dependent overload release</b> | 0.1 ... 0.5 A                                                  |
| <b>minimum load [%]</b>                                                                    | 20 %; from set rated current                                   |
| <b>type of the motor protection</b>                                                        | solid-state                                                    |
| <b>operating voltage rated value</b>                                                       | 48 ... 500 V                                                   |
| <b>relative symmetrical tolerance of the operating voltage</b>                             | 10 %                                                           |
| <b>operating frequency 1 rated value</b>                                                   | 50 Hz                                                          |
| <b>operating frequency 2 rated value</b>                                                   | 60 Hz                                                          |
| <b>relative symmetrical tolerance of the operating frequency</b>                           | 10 %                                                           |
| <b>operational current</b>                                                                 |                                                                |
| • at AC at 400 V rated value                                                               | 0.5 A                                                          |
| • at AC-3 at 400 V rated value                                                             | 0.5 A                                                          |
| • at AC-53a at 400 V at ambient temperature 40 °C rated value                              | 0.5 A                                                          |
| <b>ampacity when starting maximum</b>                                                      | 4 A                                                            |
| <b>operating power for 3-phase motors at 400 V at 50 Hz</b>                                | 0 ... 0.12 kW                                                  |
| <b>Inputs/ Outputs</b>                                                                     |                                                                |
| <b>input voltage at digital input</b>                                                      |                                                                |
| • at DC rated value                                                                        | 24 V                                                           |
| • with signal <0> at DC                                                                    | 0 ... 5 V                                                      |
| • for signal <1> at DC                                                                     | 15 ... 30                                                      |
| <b>input current at digital input</b>                                                      |                                                                |
| • for signal <1> at DC                                                                     | 11 mA                                                          |
| • with signal <0> at DC                                                                    | 1 mA                                                           |
| <b>number of CO contacts for auxiliary contacts</b>                                        | 1                                                              |
| <b>operational current of auxiliary contacts at AC-15 at 230 V maximum</b>                 | 3 A                                                            |
| <b>operational current of auxiliary contacts at DC-13 at 24 V maximum</b>                  | 1 A                                                            |
| <b>Control circuit/ Control</b>                                                            |                                                                |
| <b>type of voltage of the control supply voltage</b>                                       | DC                                                             |
| <b>control supply voltage at DC rated value</b>                                            | 19.2 ... 30 V                                                  |
| <b>relative negative tolerance of the control supply voltage at DC</b>                     | 20 %                                                           |
| <b>relative positive tolerance of the control supply voltage at DC</b>                     | 25 %                                                           |
| <b>control supply voltage 1 at DC rated value</b>                                          | 24 V                                                           |
| <b>operating range factor control supply voltage rated value at DC</b>                     |                                                                |
| • initial value                                                                            | 0.8                                                            |
| • full-scale value                                                                         | 1.25                                                           |
| <b>control current at DC</b>                                                               |                                                                |
| • in standby mode of operation                                                             | 25 mA                                                          |
| • during operation                                                                         | 70 mA                                                          |
| <b>inrush current peak</b>                                                                 |                                                                |
| • at DC at 24 V                                                                            | 300 mA                                                         |
| • at DC at 24 V at switching on of motor                                                   | 130 mA                                                         |
| <b>duration of inrush current peak</b>                                                     |                                                                |
| • at DC at 24 V                                                                            | 80 ms                                                          |
| • at DC at 24 V at switching on of motor                                                   | 20 ms                                                          |
| <b>power loss [W] in auxiliary and control circuit</b>                                     |                                                                |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• in switching state OFF <ul style="list-style-type: none"> <li>— with bypass circuit</li> </ul> </li> <li>• in switching state ON <ul style="list-style-type: none"> <li>— with bypass circuit</li> </ul> </li> </ul>                                                                                                                                                                                                                                                                                    | 0.6 W<br><br>1.68 W                                                                                                                                                                                                          |
| <b>Response times</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                              |
| <b>ON-delay time</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 60 ... 90 ms                                                                                                                                                                                                                 |
| <b>OFF-delay time</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 60 ... 90 ms                                                                                                                                                                                                                 |
| <b>Power Electronics</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                              |
| <b>operational current</b> <ul style="list-style-type: none"> <li>• at 40 °C rated value</li> <li>• at 50 °C rated value</li> <li>• at 55 °C rated value</li> <li>• at 60 °C rated value</li> </ul>                                                                                                                                                                                                                                                                                                                                              | 0.5 A<br>0.5 A<br>0.5 A<br>0.5 A                                                                                                                                                                                             |
| <b>Installation/ mounting/ dimensions</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                              |
| <b>mounting position</b><br><b>fastening method</b><br><b>height</b><br><b>width</b><br><b>depth</b><br><b>required spacing</b> <ul style="list-style-type: none"> <li>• with side-by-side mounting <ul style="list-style-type: none"> <li>— forwards</li> <li>— backwards</li> <li>— upwards</li> <li>— downwards</li> <li>— at the side</li> </ul> </li> <li>• for grounded parts <ul style="list-style-type: none"> <li>— forwards</li> <li>— backwards</li> <li>— upwards</li> <li>— at the side</li> <li>— downwards</li> </ul> </li> </ul> | vertical, horizontal, standing (observe derating)<br>screw and snap-on mounting onto 35 mm DIN rail<br>100 mm<br>23 mm<br>142 mm<br><br>0 mm<br>0 mm<br>50 mm<br>50 mm<br>0 mm<br><br>0 mm<br>0 mm<br>50 mm<br>4 mm<br>50 mm |
| <b>Ambient conditions</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                              |
| installation altitude at height above sea level maximum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4 000 m; For derating see manual                                                                                                                                                                                             |
| <b>ambient temperature</b> <ul style="list-style-type: none"> <li>• during operation</li> <li>• during storage</li> <li>• during transport</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                            | -25 ... +60 °C<br>-40 ... +70 °C<br>-40 ... +70 °C                                                                                                                                                                           |
| environmental category during operation according to IEC 60721                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 3K6 (no ice formation, only occasional condensation), 3C3 (no salt mist), 3S2 (sand must not get into the devices), 3M6                                                                                                      |
| relative humidity during operation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 10 ... 95 %                                                                                                                                                                                                                  |
| air pressure according to SN 31205                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 900 ... 1 060 hPa                                                                                                                                                                                                            |
| <b>Communication/ Protocol</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                              |
| <b>protocol is supported</b> <ul style="list-style-type: none"> <li>• PROFINET IO protocol</li> <li>• PROFIsafe protocol</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                              | No<br>No                                                                                                                                                                                                                     |
| <b>product function bus communication</b><br>protocol is supported AS-Interface protocol                                                                                                                                                                                                                                                                                                                                                                                                                                                         | No<br>No                                                                                                                                                                                                                     |
| <b>Connections/ Terminals</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                              |
| <b>type of electrical connection</b> <ul style="list-style-type: none"> <li>• for main current circuit</li> <li>• for auxiliary and control circuit</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                   | spring-loaded terminals (push-in) for main circuit, spring-loaded terminals (push-in) for control circuit<br>spring-loaded terminals (push-in)<br>spring-loaded terminals (push-in)                                          |
| <b>wire length for motor unshielded maximum</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 100 m                                                                                                                                                                                                                        |
| <b>type of connectable conductor cross-sections</b> <ul style="list-style-type: none"> <li>• for main contacts <ul style="list-style-type: none"> <li>— solid</li> <li>— finely stranded with core end processing</li> <li>— finely stranded without core end processing</li> </ul> </li> <li>• at AWG cables for main contacts</li> </ul>                                                                                                                                                                                                       | 1x (0.5 ... 4 mm <sup>2</sup> )<br>1x (0.5 ... 2.5 mm <sup>2</sup> )<br>1x (0.5 ... 4 mm <sup>2</sup> )<br>1x (20 ... 12)                                                                                                    |
| <b>connectable conductor cross-section for main contacts</b> <ul style="list-style-type: none"> <li>• solid or stranded</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                               | 0.5 ... 4 mm <sup>2</sup>                                                                                                                                                                                                    |

|                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>finely stranded with core end processing</li> <li>finely stranded without core end processing</li> </ul>                                                                                                                                              | 0.5 ... 2.5 mm <sup>2</sup><br>0.5 ... 4 mm <sup>2</sup>                                                                                                                                                                                               |
| <b>connectable conductor cross-section for auxiliary contacts</b>                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                        |
| <ul style="list-style-type: none"> <li>solid or stranded</li> <li>finely stranded with core end processing</li> <li>finely stranded without core end processing</li> </ul>                                                                                                                   | 0.5 ... 1.5 mm <sup>2</sup><br>0.5 ... 1 mm <sup>2</sup><br>0.5 ... 1.5 mm <sup>2</sup>                                                                                                                                                                |
| <b>type of connectable conductor cross-sections</b>                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                        |
| <ul style="list-style-type: none"> <li>for auxiliary contacts <ul style="list-style-type: none"> <li>— solid</li> <li>— finely stranded with core end processing</li> <li>— finely stranded without core end processing</li> </ul> </li> <li>at AWG cables for auxiliary contacts</li> </ul> | 1x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.5 ... 1.5 mm <sup>2</sup> )<br>1x (0.5 ... 1.0 mm <sup>2</sup> ), 2x (0.5 ... 1.0 mm <sup>2</sup> )<br>1x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.5 ... 1.5 mm <sup>2</sup> )<br>1x (20 ... 16), 2x (20 ... 16) |
| <b>AWG number as coded connectable conductor cross section</b>                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                        |
| <ul style="list-style-type: none"> <li>for main contacts</li> <li>for auxiliary contacts</li> </ul>                                                                                                                                                                                          | 20 ... 12<br>20 ... 16                                                                                                                                                                                                                                 |

#### UL/CSA ratings

|                                     |       |
|-------------------------------------|-------|
| operating voltage at AC rated value | 480 V |
|-------------------------------------|-------|

#### Certificates/ approvals

|                          |     |
|--------------------------|-----|
| General Product Approval | EMC |
|--------------------------|-----|



[Confirmation](#)



|                           |                   |       |         |
|---------------------------|-------------------|-------|---------|
| Declaration of Conformity | Test Certificates | other | Railway |
|---------------------------|-------------------|-------|---------|



[Type Test Certificates/Test Report](#)

[Confirmation](#)

[Special Test Certificate](#)

#### Further information

##### Information on the packaging

<https://support.industry.siemens.com/cs/ww/en/view/109813875>

##### Information- and Downloadcenter (Catalogs, Brochures,...)

<https://www.siemens.com/ic10>

##### Industry Mall (Online ordering system)

<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RM1001-2AA04>

##### Cax online generator

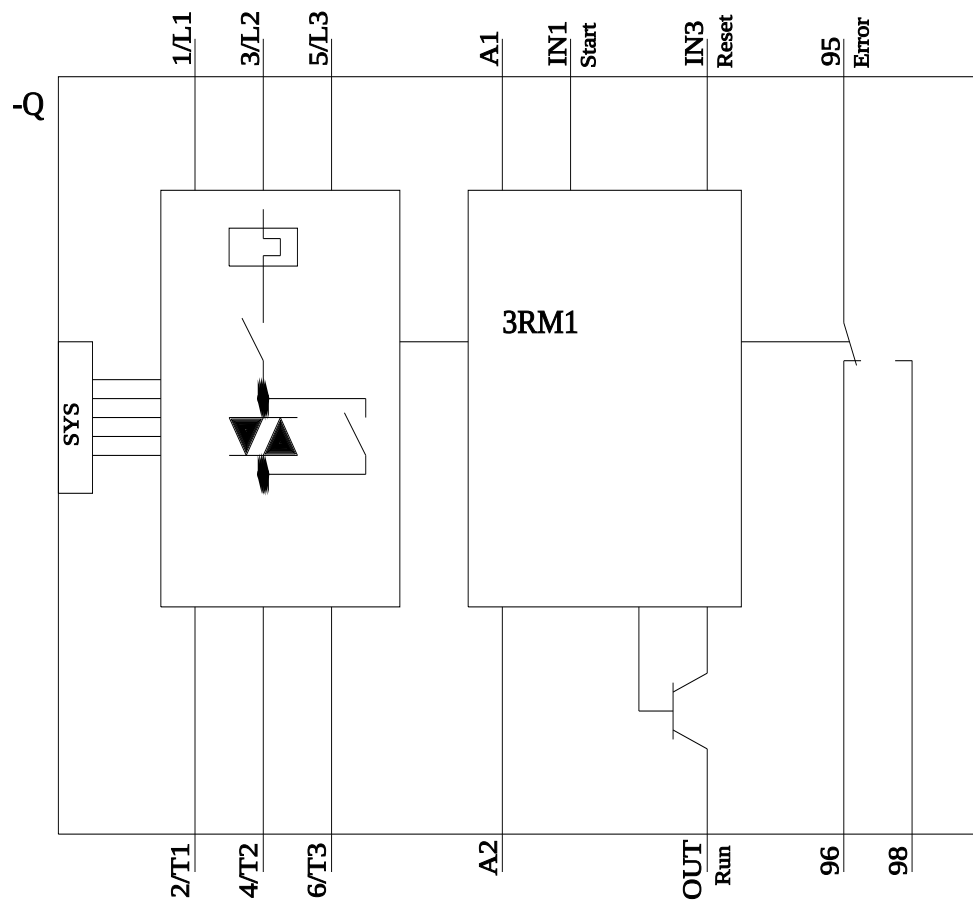
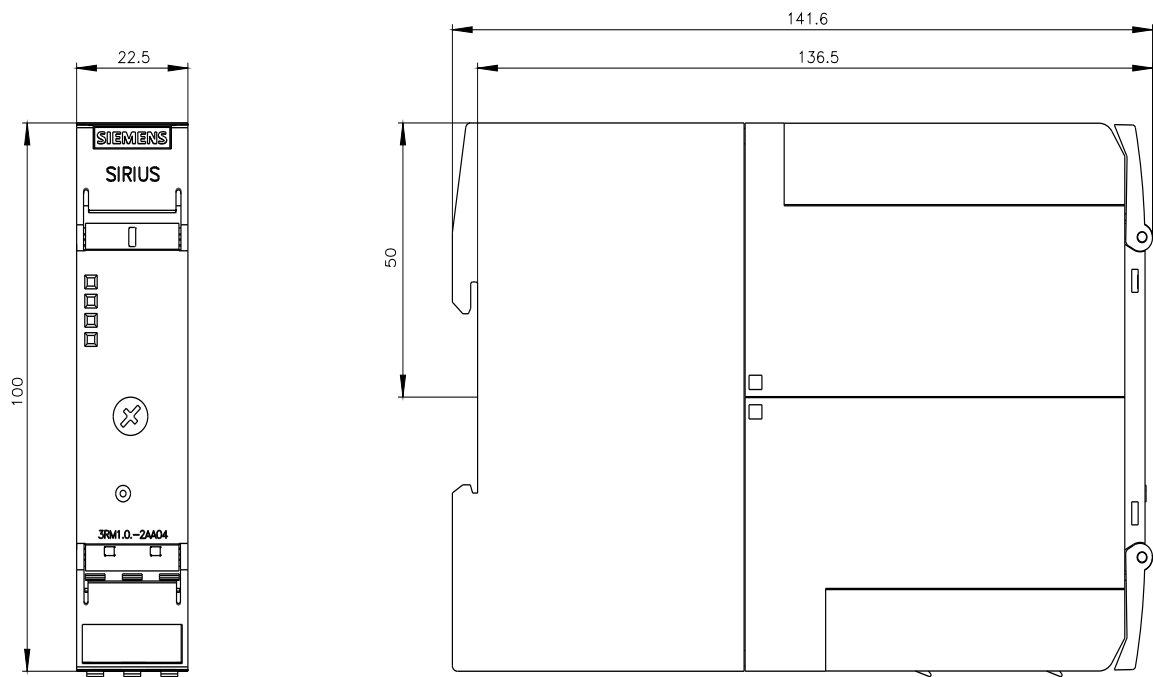
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RM1001-2AA04>

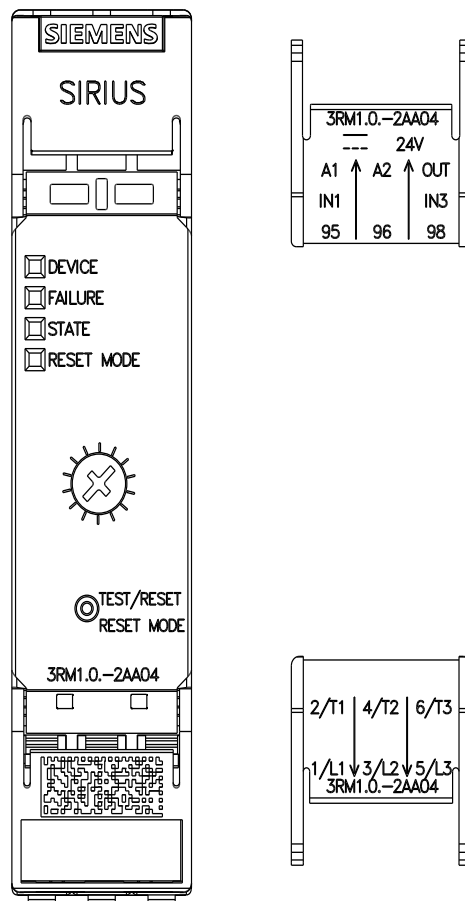
##### Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3RM1001-2AA04>

##### Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RM1001-2AA04&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RM1001-2AA04&lang=en)





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