



circuit breaker 3VA5 UL frame 125 breaking capacity class M 35kA @ 480 V 3-pole, line protection TM230, FTAM, In=20A overload protection Ir=20A fixed short-circuit protection li=7.5...15 x In without connection

### Model

|                                                                                                                            |                             |
|----------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| product brand name                                                                                                         | SENTRON                     |
| product designation                                                                                                        | Molded-case circuit breaker |
| product designation / according to UL file                                                                                 | MEAS                        |
| Product version                                                                                                            | System protection           |
| design of the load switch / according to UL 489 / Heating, Air Conditioning, and Refrigeration circuit breaker (HACR Type) | Yes                         |
| design of the load switch / according to UL 489 / High-Intensity-Discharge circuit breaker (HID Type)                      | Yes                         |
| design of the load switch / according to UL 489 / Switching Duty circuit breaker (SWD Type)                                | Yes                         |
| design of the overcurrent release                                                                                          | TM230                       |
| protection function of the overcurrent release                                                                             | LI                          |
| number of poles                                                                                                            | 3                           |

### General technical data

|                                                                                                |         |
|------------------------------------------------------------------------------------------------|---------|
| insulation voltage / rated value                                                               | 800 V   |
| Max. rated operational voltage Ue with DC                                                      | 500 V   |
| operating voltage / at AC / rated value                                                        | 690 V   |
| power loss [W] / maximum                                                                       | 12.2 W  |
| Active power loss / for rated value of the current / at AC / in hot operating state / per pole | 4.07 W  |
| mechanical service life (switching cycles) / typical                                           | 20 000  |
| Electrical endurance (switching cycles) / at AC-1 / at 380/415 V 50/60 Hz                      | 8 000   |
| Electrical endurance (switching cycles) / at AC-1 / at 690 V 50/60 Hz                          | 4 000   |
| electrical endurance (switching cycles) / at 480 V                                             | 8 000   |
| electrical endurance (switching cycles) / at 600 V                                             | 4 000   |
| Neutral conductors / upgradeable/retrofitable                                                  | No      |
| ground-fault monitoring version                                                                | without |
| product function                                                                               |         |
| • communication function                                                                       | No      |
| • other measurement function                                                                   | No      |
| Net Weight                                                                                     | 967 g   |

### Current

|                                                    |      |
|----------------------------------------------------|------|
| marking / according to UL 489 / 100%-rated breaker | No   |
| operational current                                |      |
| • at 40 °C                                         | 20 A |
| • at 45 °C                                         | 20 A |
| • at 50 °C                                         | 19 A |
| • at 55 °C                                         | 19 A |
| • at 60 °C                                         | 19 A |

|                                                                                                                               |                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• at 65 °C</li> <li>• at 70 °C</li> </ul>                                              | 18 A<br>18 A                                                                                                                                                   |
| <b>Switching capacity according to IEC 60947</b>                                                                              |                                                                                                                                                                |
| switching capacity class of the circuit breaker                                                                               | M                                                                                                                                                              |
| breaking capacity maximum short-circuit current (I <sub>cu</sub> )                                                            |                                                                                                                                                                |
| <ul style="list-style-type: none"> <li>• at 240 V</li> <li>• at 415 V</li> <li>• at 690 V</li> </ul>                          | 85 kA<br>55 kA<br>7 kA                                                                                                                                         |
| breaking capacity operating short-circuit current (I <sub>cs</sub> )                                                          |                                                                                                                                                                |
| <ul style="list-style-type: none"> <li>• at 240 V</li> <li>• at 415 V</li> <li>• at 690 V</li> </ul>                          | 85 kA<br>55 kA<br>5 kA                                                                                                                                         |
| short-circuit current making capacity (I <sub>cm</sub> )                                                                      |                                                                                                                                                                |
| <ul style="list-style-type: none"> <li>• at 240 V</li> <li>• at 415 V</li> <li>• at 690 V</li> </ul>                          | 187 kA<br>121 kA<br>11.9 kA                                                                                                                                    |
| design of short-circuit protection                                                                                            | For switching power values in DC networks, see the 3VA molded case circuit breaker device manual; link to be found under Service & Support in the last chapter |
| <b>Switching capacity according to UL 489</b>                                                                                 |                                                                                                                                                                |
| breaking capacity current                                                                                                     |                                                                                                                                                                |
| <ul style="list-style-type: none"> <li>• at 240 V</li> <li>• at 480 V</li> <li>• at 600 Y/347 V</li> </ul>                    | 85 kA<br>35 kA<br>18 kA                                                                                                                                        |
| <b>Adjustable parameters</b>                                                                                                  |                                                                                                                                                                |
| product feature / for L-tripping / selectable characteristic function                                                         | No                                                                                                                                                             |
| type of value list setting current (I <sub>r</sub> ) / for L-tripping / with I <sub>2t</sub> characteristic                   | Fest                                                                                                                                                           |
| reference value setting current (I <sub>r</sub> ) / for L-tripping / with I <sub>2t</sub> characteristic                      | x I <sub>n</sub>                                                                                                                                               |
| set values setting current (I <sub>r</sub> ) / for L-tripping / with I <sub>2t</sub> characteristic                           | 1                                                                                                                                                              |
| adjustable response factor setting current (I <sub>r</sub> ) / for L-tripping / with I <sub>2t</sub> characteristic / minimum | 1                                                                                                                                                              |
| adjustable response factor setting current (I <sub>r</sub> ) / for L-tripping / with I <sub>2t</sub> characteristic / maximum | 1                                                                                                                                                              |
| adjustable response value setting current (I <sub>r</sub> ) / of the L-trip / with I <sub>2t</sub> characteristic / minimum   | 20 A                                                                                                                                                           |
| adjustable response value setting current (I <sub>r</sub> ) / of the L-trip / with I <sub>2t</sub> characteristic / maximum   | 20 A                                                                                                                                                           |
| type of value list delay time (t <sub>r</sub> ) / for L-tripping / with I <sub>2t</sub> characteristic                        | Fest                                                                                                                                                           |
| reference value delay time (t <sub>r</sub> ) / for L-tripping / with I <sub>2t</sub> characteristic                           | s                                                                                                                                                              |
| set values delay time (t <sub>r</sub> ) / for L-tripping / with I <sub>2t</sub> characteristic                                | 1                                                                                                                                                              |
| adjustable response value delay time (t <sub>r</sub> ) / for L-tripping / with I <sub>2t</sub> characteristic / minimum       | 1 s                                                                                                                                                            |
| adjustable response value delay time (t <sub>r</sub> ) / for L-tripping / with I <sub>2t</sub> characteristic / maximum       | 1 s                                                                                                                                                            |
| product feature / for S-tripping / independent of direction / selectable characteristic function                              | No                                                                                                                                                             |
| product feature / for I-tripping / can be switched on/off                                                                     | No                                                                                                                                                             |
| design of I-trip / adjustable                                                                                                 | Yes                                                                                                                                                            |
| reference value setting current (I <sub>i</sub> ) / for I-tripping                                                            | x I <sub>n</sub>                                                                                                                                               |
| set values setting current (I <sub>i</sub> ) / for I-tripping                                                                 | 7.5;9;10.5;12;13.5;15                                                                                                                                          |
| adjustable response factor setting current (I <sub>i</sub> ) / for I-tripping / minimum                                       | 7.5                                                                                                                                                            |
| adjustable response factor setting current (I <sub>i</sub> ) / for I-tripping / maximum                                       | 15                                                                                                                                                             |
| adjustable response value setting current (I <sub>i</sub> ) / for I-tripping / minimum                                        | 150 A                                                                                                                                                          |
| adjustable response value setting current (I <sub>i</sub> ) / for I-tripping / maximum                                        | 300 A                                                                                                                                                          |
| product feature / for G-tripping / selectable characteristic function                                                         | No                                                                                                                                                             |

|                                                                                                          |                                           |
|----------------------------------------------------------------------------------------------------------|-------------------------------------------|
| product feature / with neutral conductor protection / can be switched on/off                             | No                                        |
| product feature / with neutral conductor protection / adjustable                                         | Yes                                       |
| type of value list setting current (In) / for N-tripping                                                 | St                                        |
| reference value setting current (In) / for N-tripping                                                    | x In                                      |
| adjustable absolute value setting current (In) / for N-tripping / minimum                                | 0 A                                       |
| adjustable absolute value setting current (In) / for N-tripping / maximum                                | 0 A                                       |
| tripping characteristic / of the lower tolerance band                                                    | AK_3VA5_1_20A_TM2_SuMuH_uT                |
| tripping characteristic / of the upper tolerance band                                                    | AK_3VA5_1_20A_TM2_SuMuH_oT                |
| let-through energy characteristic / at 240 V                                                             | DE_3VA5_1_20A_TM_line u starter_3u4p_240V |
| let-through energy characteristic / at 415 V                                                             | DE_3VA5_1_20A_TM_line u starter_3u4p_415V |
| let-through energy characteristic / at 690 V                                                             | DE_3VA5_1_20A_TM_line u starter_3u4p_690V |
| type of value list setting current (Ii) / for I-tripping                                                 | St                                        |
| tripping characteristic / of the let-through current characteristic / at 240 V                           | DS_3VA5_1_20A_TM_line u starter_3u4p_240V |
| tripping characteristic / of the let-through current characteristic / at 415 V                           | DS_3VA5_1_20A_TM_line u starter_3u4p_415V |
| tripping characteristic / of the let-through current characteristic / at 690 V                           | DS_3VA5_1_20A_TM_line u starter_3u4p_690V |
| Adjustable response value current / Ig min.                                                              | 20 A                                      |
| adjustable current response value current / of the current-dependent overload release / full-scale value | 20 A                                      |
| Ground fault protection / tripping switchable / I2t=ON/OFF                                               | No                                        |
| <b>Mechanical Design</b>                                                                                 |                                           |
| product component                                                                                        |                                           |
| • undervoltage release                                                                                   | No                                        |
| • voltage trigger                                                                                        | No                                        |
| • trip indicator                                                                                         | No                                        |
| height [in]                                                                                              | 5.51 in                                   |
| Height                                                                                                   | 140 mm                                    |
| width [in]                                                                                               | 3 in                                      |
| Width                                                                                                    | 76.2 mm                                   |
| depth [in]                                                                                               | 3.01 in                                   |
| depth                                                                                                    | 76.5 mm                                   |
| <b>Connections</b>                                                                                       |                                           |
| arrangement of electrical connectors / for main current circuit                                          | Without connection                        |
| type of electrical connection / for main current circuit                                                 | Without                                   |
| <b>Auxiliary circuit</b>                                                                                 |                                           |
| number of CO contacts / for auxiliary contacts                                                           | 0                                         |
| <b>Accessories</b>                                                                                       |                                           |
| product extension / optional / motor drive                                                               | Yes                                       |
| <b>Environmental conditions</b>                                                                          |                                           |
| protection class IP / on the front                                                                       | IP40                                      |
| ambient temperature                                                                                      |                                           |
| • during operation / minimum                                                                             | -25 °C                                    |
| • during operation / maximum                                                                             | 70 °C                                     |
| • during storage / minimum                                                                               | -40 °C                                    |
| • during storage / maximum                                                                               | 80 °C                                     |
| <b>Certificates</b>                                                                                      |                                           |
| reference code / according to IEC 81346-2                                                                | Q                                         |
| <b>General Product Approval</b>                                                                          |                                           |



[Confirmation](#)



General Product Approval

EMC

Declaration of Conformity

Test Certificates

[Miscellaneous](#)



[Miscellaneous](#)

Test Certificates

Marine / Shipping

other

[Special Test Certificate](#)



[Miscellaneous](#)

[Miscellaneous](#)

## Further information

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

<http://www.siemens.com/lowvoltage/catalogs>

Industry Mall (Online ordering system)

<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3VA5120-5EC31-0AA0>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3VA5120-5EC31-0AA0>

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

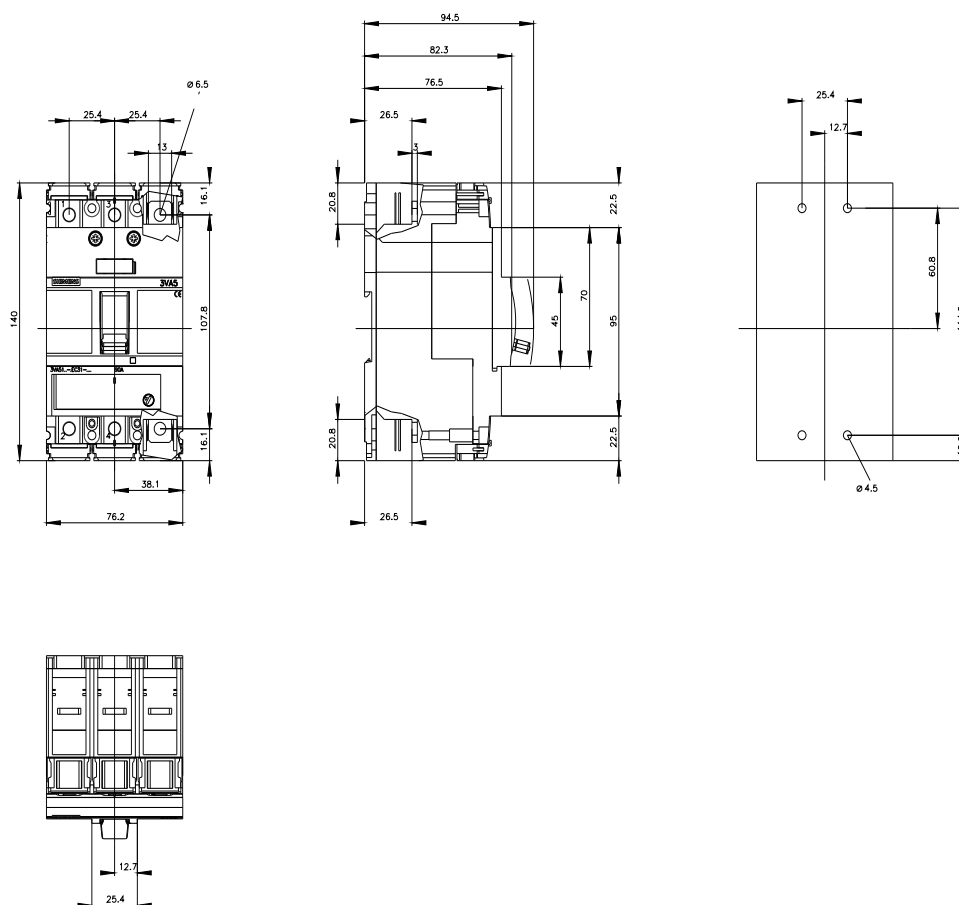
[http://www.automation.siemens.com/bilddb/cax\\_en.aspx?mlfb=3VA5120-5EC31-0AA0](http://www.automation.siemens.com/bilddb/cax_en.aspx?mlfb=3VA5120-5EC31-0AA0)

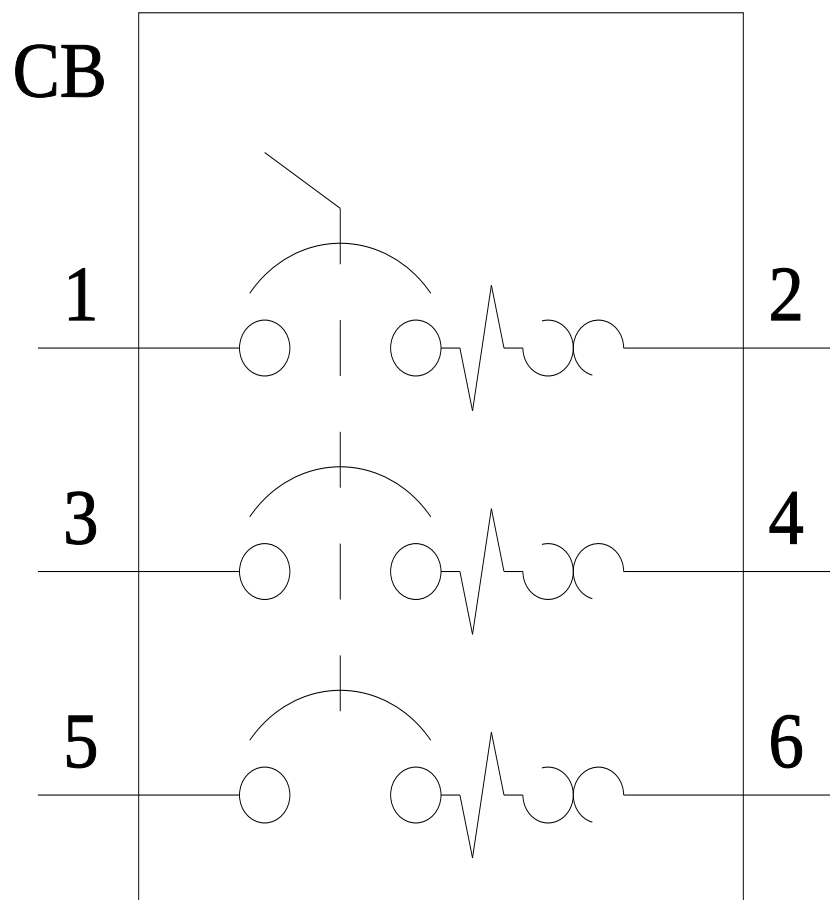
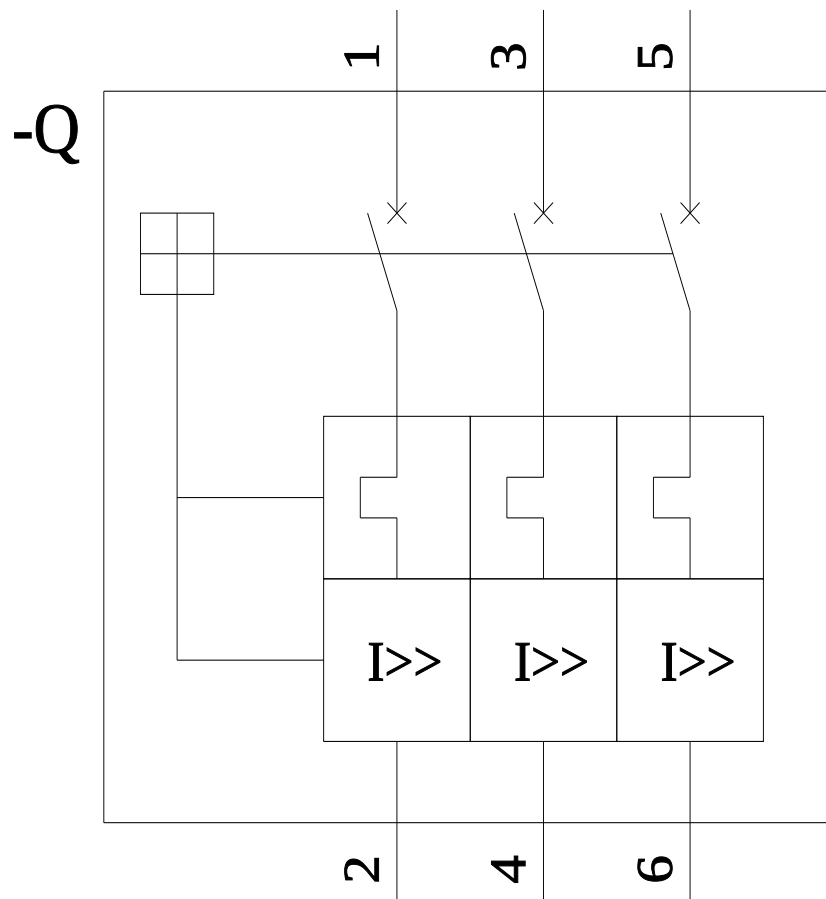
CAX-Online-Generator

<http://www.siemens.com/cax>

Tender specifications

<http://www.siemens.com/specifications>





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