

Siemens  
EcoTech



circuit breaker 3VA1 IEC Frame 160 breaking capacity class S Icu=36 kA @ 415 V  
4-pole, line protection TM220, ATFM, In=16 A overload protection Ir=11 A...16 A  
short-circuit protection Ii=20 x In N conductor unprotected terminal connection

| Model                                                                                                  |                             |
|--------------------------------------------------------------------------------------------------------|-----------------------------|
| product brand name                                                                                     | SENTRON                     |
| product designation                                                                                    | Molded case circuit breaker |
| design of the product                                                                                  | Line protection             |
| design of the overcurrent release                                                                      | TM220                       |
| protection function of the overcurrent release                                                         | LI                          |
| number of poles                                                                                        | 4                           |
| General technical data                                                                                 |                             |
| insulation voltage / rated value                                                                       | 800 V                       |
| operating voltage / at DC / rated value                                                                | 600 V                       |
| operating voltage / at AC / rated value                                                                | 690 V                       |
| power loss [W] / maximum                                                                               | 10.6 W                      |
| power loss [W] / for rated value of the current / at AC / in hot operating state / per pole            | 3.53 W                      |
| mechanical service life (operating cycles) / typical                                                   | 20 000                      |
| electrical endurance (operating cycles) / at AC-1 / at 380/415 V                                       | 9 000                       |
| electrical endurance (operating cycles) / at AC-1 / at 690 V                                           | 6 300                       |
| product feature / for neutral conductors / upgradable/retrofittable / short-circuit and overload proof | No                          |
| ground-fault monitoring version                                                                        | Without                     |
| product function                                                                                       |                             |
| • communication function                                                                               | No                          |
| • other measurement function                                                                           | No                          |
| Net Weight                                                                                             | 1.275 kg                    |
| Current                                                                                                |                             |
| operational current                                                                                    |                             |
| • at 40 °C                                                                                             | 16 A                        |
| • at 45 °C                                                                                             | 16 A                        |
| • at 50 °C                                                                                             | 16 A                        |
| • at 55 °C                                                                                             | 16 A                        |
| • at 60 °C                                                                                             | 15 A                        |
| • at 65 °C                                                                                             | 15 A                        |
| • at 70 °C                                                                                             | 15 A                        |
| Switching capacity according to IEC 60947                                                              |                             |
| switching capacity class of the circuit breaker                                                        | S                           |
| maximum short-circuit current breaking capacity (Icu)                                                  |                             |

|                                                                                                                                                                                                      |                                                                                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• at 240 V</li> <li>• at 415 V</li> <li>• at 440 V</li> <li>• at 500 V</li> <li>• at 690 V</li> </ul>                                                         | 55 kA<br>36 kA<br>25 kA<br>7 kA<br>7 kA                                                                                                                        |
| operating short-circuit current breaking capacity (Ics) <ul style="list-style-type: none"> <li>• at 240 V</li> <li>• at 415 V</li> <li>• at 440 V</li> <li>• at 500 V</li> <li>• at 690 V</li> </ul> | 55 kA<br>36 kA<br>25 kA<br>5 kA<br>5 kA                                                                                                                        |
| short-circuit current making capacity (Icm) <ul style="list-style-type: none"> <li>• at 240 V</li> <li>• at 415 V</li> <li>• at 440 V</li> <li>• at 500 V</li> <li>• at 690 V</li> </ul>             | 121 kA<br>75.5 kA<br>52.5 kA<br>11.9 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 |

#### Adjustable parameters

|                                                                                                                                                                                                  |                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| product feature / for L-tripping / can be switched on/off                                                                                                                                        | No             |
| adjustable response value setting current (I <sub>r</sub> ) / of the L-trip / with I <sub>2t</sub> characteristic <ul style="list-style-type: none"> <li>• minimum</li> <li>• maximum</li> </ul> | 11 A<br>16 A   |
| adjustable response value delay time (t <sub>r</sub> ) / for L-tripping / with I <sub>2t</sub> characteristic <ul style="list-style-type: none"> <li>• minimum</li> <li>• maximum</li> </ul>     | 1 s<br>1 s     |
| adjustable response value setting current (I <sub>i</sub> ) / for I-tripping <ul style="list-style-type: none"> <li>• minimum</li> <li>• maximum</li> </ul>                                      | 320 A<br>320 A |
| adjustable setting current (I <sub>nN</sub> ) / for N-tripping <ul style="list-style-type: none"> <li>• minimum</li> <li>• maximum</li> </ul>                                                    | 0 A<br>0 A     |
| design of the N-conductor protection                                                                                                                                                             | without        |
| product function / grounding protection                                                                                                                                                          | No             |

#### Mechanical Design

|                                                                                                                                                 |                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| product component <ul style="list-style-type: none"> <li>• undervoltage release</li> <li>• voltage trigger</li> <li>• trip indicator</li> </ul> | No<br>No<br>No                  |
| height [in]                                                                                                                                     | 5.12 in                         |
| height                                                                                                                                          | 130 mm                          |
| width [in]                                                                                                                                      | 4 in                            |
| type of connectable conductor cross-sections / of the round conductor terminal / stranded                                                       | 1 x (1,5 - 70 mm <sup>2</sup> ) |
| width                                                                                                                                           | 101.5 mm                        |
| depth [in]                                                                                                                                      | 2.76 in                         |
| depth                                                                                                                                           | 70 mm                           |

#### Connections

|                                                                                       |                            |
|---------------------------------------------------------------------------------------|----------------------------|
| arrangement of electrical connectors / for main current circuit                       | Front terminal             |
| type of electrical connection / for main current circuit                              | box terminal on both sides |
| design of the surface / of the connections / on the top of the switch (N, 1, 3, 5)    | Silver                     |
| design of the surface / of the connections / on the bottom of the switch (N, 2, 4, 6) | Tin                        |

#### Auxiliary circuit

|                                                |   |
|------------------------------------------------|---|
| number of CO contacts / for auxiliary contacts | 0 |
|------------------------------------------------|---|

#### Accessories

|                                            |        |
|--------------------------------------------|--------|
| 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>Environmental footprint</b>                                       |           |
| Environmental Product Declaration (EPD)                              | Yes       |
| global warming potential [CO <sub>2</sub> eq] / total                | 190 kg    |
| global warming potential [CO <sub>2</sub> eq] / during manufacturing | 4.67 kg   |
| global warming potential [CO <sub>2</sub> eq] / during operation     | 186 kg    |
| global warming potential [CO <sub>2</sub> eq] / after end of life    | -0.826 kg |
| reference code / according to IEC 81346-2                            | Q         |

|                                 |  |
|---------------------------------|--|
| <b>Approvals / Certificates</b> |  |
| <b>General Product Approval</b> |  |



[Miscellaneous](#)



|                          |     |                   |
|--------------------------|-----|-------------------|
| General Product Approval | EMV | Test Certificates |
|--------------------------|-----|-------------------|

[Confirmation](#)



[Special Test Certificate](#)

[Type Test Certificates/Test Report](#)

|                   |                      |
|-------------------|----------------------|
| Test Certificates | Maritime application |
|-------------------|----------------------|

[Miscellaneous](#)



|                      |       |             |
|----------------------|-------|-------------|
| Maritime application | other | Environment |
|----------------------|-------|-------------|

[CCS \(China Classification Society\)](#)

[Miscellaneous](#)

[Confirmation](#)



[Environmental Confirmations](#)



|             |
|-------------|
| Environment |
|-------------|

[Environmental Confirmations](#)



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|                     |
|---------------------|
| Further information |
|---------------------|

Information on the packaging

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

Information for data generation and storage

<https://support.industry.siemens.com/cs/ww/en/view/109995012>

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

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

Industry Mall (Online ordering system)

<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3VA1196-4EE46-0AA0>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3VA1196-4EE46-0AA0>

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

[https://www.automation.siemens.com/bilddb/cax\\_en.aspx?mlfb=3VA1196-4EE46-0AA0](https://www.automation.siemens.com/bilddb/cax_en.aspx?mlfb=3VA1196-4EE46-0AA0)

CAX-Online-Generator

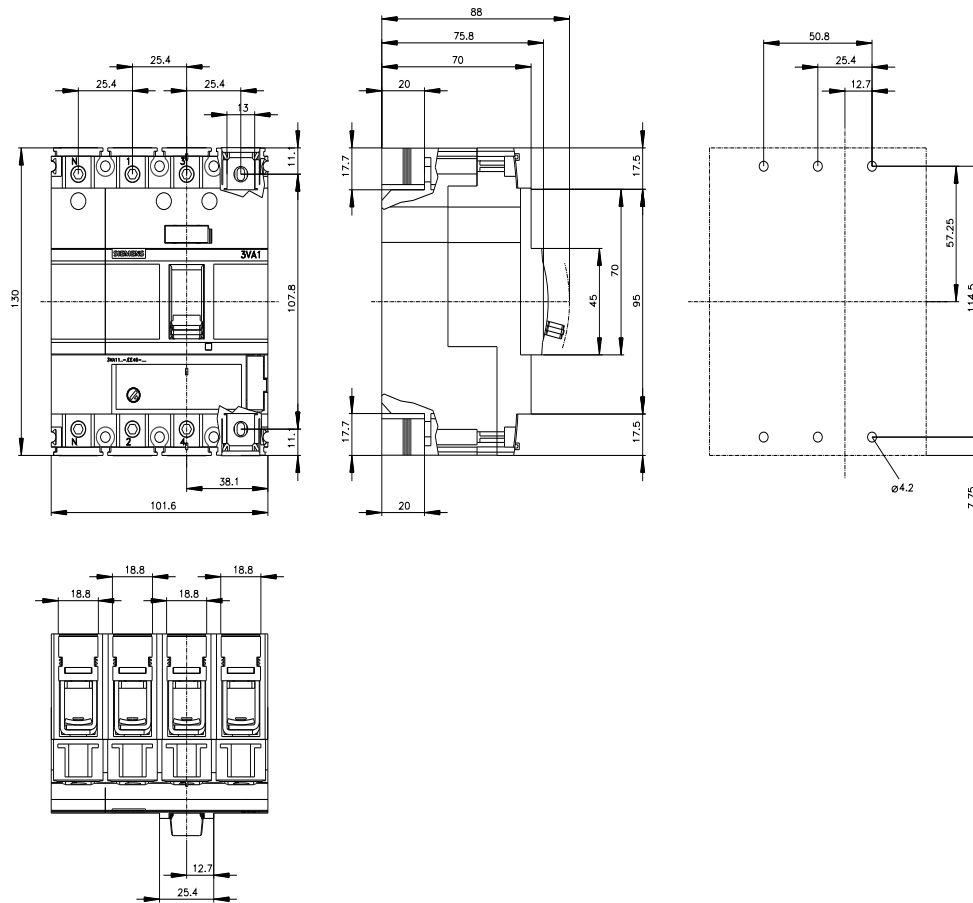
<https://www.siemens.com/cax>

Tender specifications

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

Characteristic curves

[https://curves.simaris.siemens.com/curves/<mmp\\_prod\\_noCOMP='HAUPT'></mmp\\_prod\\_no>](https://curves.simaris.siemens.com/curves/<mmp_prod_noCOMP='HAUPT'></mmp_prod_no>)





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