

Siemens  
EcoTech



circuit breaker 3VA1 IEC Frame 160 breaking capacity class N Icu=25 kA @ 415 V  
4-pole, line protection TM220, ATFM, In=125 A overload protection Ir=88 A...125 A  
short-circuit protection Ii=10 x In neutral conductor protection 50% nut keeper kit

| 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                                                                              | 28.1 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/retrofitable / short-circuit and overload proof | No                          |
| ground-fault monitoring version                                                                       | Without                     |
| product function                                                                                      |                             |
| • communication function                                                                              | No                          |
| • other measurement function                                                                          | No                          |
| Net Weight                                                                                            | 1.2 kg                      |
| Current                                                                                               |                             |
| operational current                                                                                   |                             |
| • at 40 °C                                                                                            | 125 A                       |
| • at 45 °C                                                                                            | 125 A                       |
| • at 50 °C                                                                                            | 125 A                       |
| • at 55 °C                                                                                            | 122 A                       |
| • at 60 °C                                                                                            | 120 A                       |
| • at 65 °C                                                                                            | 117 A                       |
| • at 70 °C                                                                                            | 114 A                       |
| Switching capacity according to IEC 60947                                                             |                             |
| switching capacity class of the circuit breaker                                                       | N                           |
| maximum short-circuit current breaking capacity (Icu)                                                 |                             |
| • at 240 V                                                                                            | 36 kA                       |
| • at 415 V                                                                                            | 25 kA                       |

|                                                                                                                                                                                                      |                                                                                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• at 440 V</li> <li>• at 500 V</li> <li>• at 690 V</li> </ul>                                                                                                 | 16 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> | 36 kA<br>25 kA<br>16 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>             | 75.5 kA<br>52.5 kA<br>32 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 |
| <b>Adjustable parameters</b>                                                                                                                                                                         |                                                                                                                                                                |
| product feature / for L-tripping / can be switched on/off                                                                                                                                            | No                                                                                                                                                             |
| adjustable response value setting current (Ir) / of the L-trip / with I2t characteristic <ul style="list-style-type: none"> <li>• minimum</li> <li>• maximum</li> </ul>                              | 87 A<br>125 A                                                                                                                                                  |
| adjustable response value delay time (tr) / for L-tripping / with I2t characteristic <ul style="list-style-type: none"> <li>• minimum</li> <li>• maximum</li> </ul>                                  | 1 s<br>1 s                                                                                                                                                     |
| adjustable response value setting current (Ii) / for I-tripping <ul style="list-style-type: none"> <li>• minimum</li> <li>• maximum</li> </ul>                                                       | 1 250 A<br>1 250 A                                                                                                                                             |
| adjustable setting current (InN) / for N-tripping <ul style="list-style-type: none"> <li>• minimum</li> <li>• maximum</li> </ul>                                                                     | 62 A<br>62 A                                                                                                                                                   |
| design of the N-conductor protection                                                                                                                                                                 | 50%                                                                                                                                                            |
| product function / grounding protection                                                                                                                                                              | No                                                                                                                                                             |
| <b>Mechanical Design</b>                                                                                                                                                                             |                                                                                                                                                                |
| 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                                                                                                                                                           |
| width                                                                                                                                                                                                | 101.5 mm                                                                                                                                                       |
| depth [in]                                                                                                                                                                                           | 2.76 in                                                                                                                                                        |
| depth                                                                                                                                                                                                | 70 mm                                                                                                                                                          |
| <b>Connections</b>                                                                                                                                                                                   |                                                                                                                                                                |
| arrangement of electrical connectors / for main current circuit                                                                                                                                      | Front terminal                                                                                                                                                 |
| type of electrical connection / for main current circuit                                                                                                                                             | nut keeper kit on both ends                                                                                                                                    |
| type of connectable conductor cross-sections / for flat-bar terminal connection / minimum                                                                                                            | 12 x 1 mm                                                                                                                                                      |
| type of connectable conductor cross-sections / for flat-bar terminal connection / maximum                                                                                                            | 17 x 6,5 mm                                                                                                                                                    |
| 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                                                                                                                                                            |
| <b>Auxiliary circuit</b>                                                                                                                                                                             |                                                                                                                                                                |
| number of CO contacts / for auxiliary contacts                                                                                                                                                       | 0                                                                                                                                                              |
| <b>Accessories</b>                                                                                                                                                                                   |                                                                                                                                                                |

|                                            |     |
|--------------------------------------------|-----|
| product extension / optional / motor drive | Yes |
|--------------------------------------------|-----|

#### Environmental conditions

|                                    |        |
|------------------------------------|--------|
| 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  |

#### Environmental footprint

|                                                          |           |
|----------------------------------------------------------|-----------|
| Environmental Product Declaration (EPD)                  | Yes       |
| global warming potential [CO2 eq] / total                | 190 kg    |
| global warming potential [CO2 eq] / during manufacturing | 4.67 kg   |
| global warming potential [CO2 eq] / during operation     | 186 kg    |
| global warming potential [CO2 eq] / after end of life    | -0.826 kg |
| reference code / according to IEC 81346-2                | Q         |

#### Approvals / Certificates

##### General Product Approval



[Miscellaneous](#)



[Confirmation](#)

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



[Miscellaneous](#)

[Special Test Certificate](#)

[Type Test Certificates/Test Report](#)

##### Maritime application



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

| other | Environment |
|-------|-------------|
|-------|-------------|

[Miscellaneous](#)

[Confirmation](#)



[Environmental Confirmations](#)

[Environmental Confirmations](#)



##### Environment



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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=3VA1112-3FE42-0AA0>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3VA1112-3FE42-0AA0>

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

[https://www.automation.siemens.com/bilddb/cax\\_en.aspx?mlfb=3VA1112-3FE42-0AA0](https://www.automation.siemens.com/bilddb/cax_en.aspx?mlfb=3VA1112-3FE42-0AA0)

CAX-Online-Generator

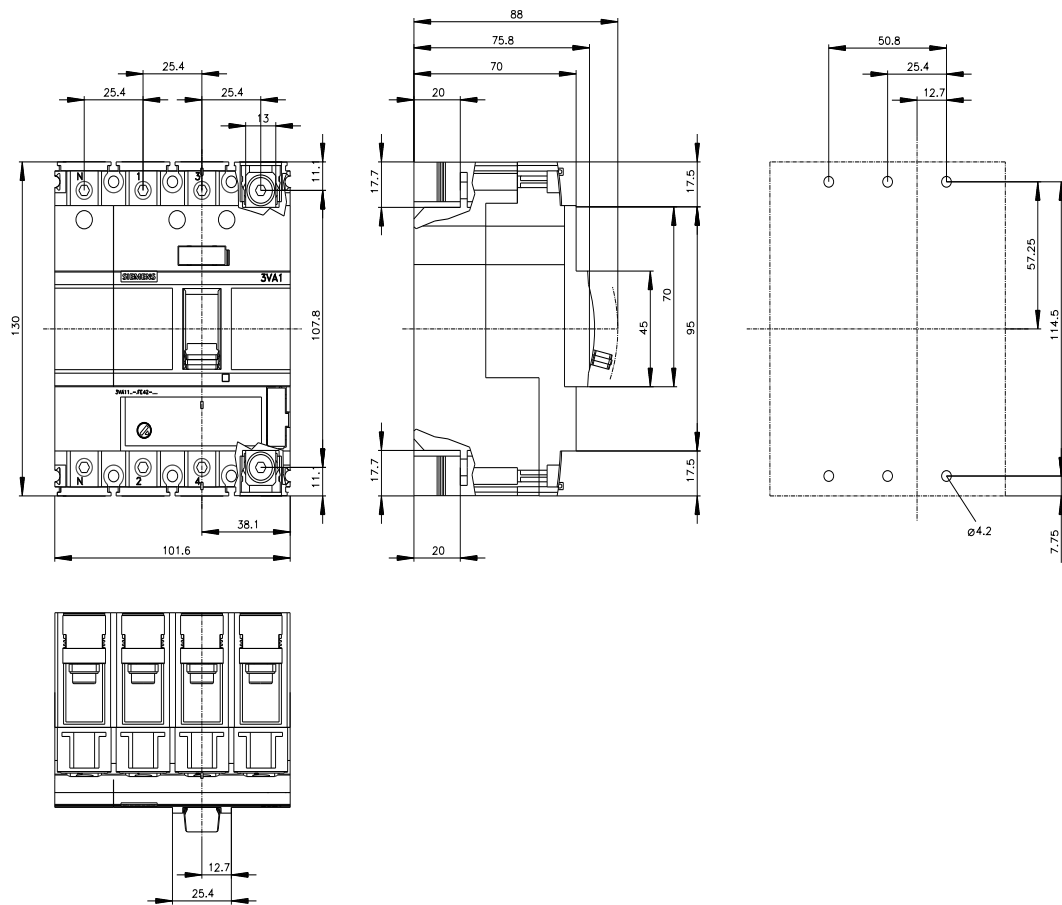
<https://www.siemens.com/cax>

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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