



circuit breaker 3VA1 IEC Frame 160 breaking capacity class M Icu=55 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 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                                                                              | 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/retrofitable / short-circuit and overload proof | No                          |
| product function                                                                                      |                             |
| • communication function                                                                              | No                          |
| • other measurement function                                                                          | No                          |
| Net Weight                                                                                            | 1.225 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                                                       | M                           |
| maximum short-circuit current breaking capacity (Icu)                                                 |                             |
| • at 240 V                                                                                            | 85 kA                       |
| • at 415 V                                                                                            | 55 kA                       |
| • at 440 V                                                                                            | 36 kA                       |
| • at 500 V                                                                                            | 10 kA                       |
| • at 690 V                                                                                            | 10 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>                                                          | 85 kA<br>55 kA<br>36 kA<br>5 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 440 V</li> <li>• at 500 V</li> <li>• at 690 V</li> </ul> | 187 kA<br>121 kA<br>75.6 kA<br>17 kA<br>17 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>l</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>N</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           |
| width                                                                                                                                           | 101.6 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                                  | 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                         |

#### Auxiliary circuit

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

#### Accessories

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

#### Environmental conditions

|                                                                                                                                          |                 |
|------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| protection class IP / on the front                                                                                                       | IP40            |
| ambient temperature <ul style="list-style-type: none"> <li>• during operation / minimum</li> <li>• during operation / maximum</li> </ul> | -25 °C<br>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](#)

[KC](#)

##### General Product Approval

##### EMV

##### Test Certificates



[BIS CRS](#)



[Type Test Certificates/Test Report](#)

[Miscellaneous](#)

[Special Test Certificate](#)

#### Marine / Shipping



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

##### other

##### Environment

[Confirmation](#)

[Miscellaneous](#)

[Miscellaneous](#)



[Environmental Confirmations](#)

#### Environment

[Environmental Confirmations](#)

#### Further information

##### Information on the packaging

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

##### 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=3VA1196-5EE42-0AA0>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3VA1196-5EE42-0AA0>

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

[http://www.automation.siemens.com/bilddb/cax\\_en.aspx?mlfb=3VA1196-5EE42-0AA0](http://www.automation.siemens.com/bilddb/cax_en.aspx?mlfb=3VA1196-5EE42-0AA0)

##### CAX-Online-Generator

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

##### Tender specifications

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





