

**Siemens  
EcoTech**



circuit breaker 3VA6 UL Frame 250 breaking capacity class M 35 kA @ 480 V 3-pole, line protection ETU860, LSIG,  $I_n=100$  A overload protection  $I_r=40$  A...100 A short-circuit protection  $I_{sd}=0.6..10 \times I_n$ ,  $I_i=1.5..12 \times I_n$  neutral conductor protection optionally with external current transformer, up to 160% ground-fault protection  $I_g=0.2...1 \times I_n$ ,  $t_g=0.05-0.8$ s without connection



| Model                                                                                                                      |                                         |
|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| product brand name                                                                                                         | SENTRON                                 |
| product designation                                                                                                        | Molded-case circuit breaker             |
| product designation / according to UL file                                                                                 | MFAE                                    |
| design of the product                                                                                                      | System protection                       |
| design of the load switch / according to UL 489 / Heating, Air Conditioning, and Refrigeration circuit breaker (HACR Type) | Yes                                     |
| design of the overcurrent release                                                                                          | ETU860                                  |
| protection function of the overcurrent release                                                                             | LSIG                                    |
| number of poles                                                                                                            | 3                                       |
| General technical data                                                                                                     |                                         |
| insulation voltage / rated value                                                                                           | 800 V                                   |
| operating voltage / at AC / rated value                                                                                    | 690 V                                   |
| power loss [W] / maximum                                                                                                   | 6.7 W                                   |
| power loss [W] / for rated value of the current / at AC / in hot operating state / per pole                                | 2.23 W                                  |
| mechanical service life (operating cycles) / typical                                                                       | 25 000                                  |
| electrical endurance (operating cycles) / at AC-1 / at 380/415 V                                                           | 12 000                                  |
| electrical endurance (operating cycles) / at AC-1 / at 690 V                                                               | 8 400                                   |
| electrical endurance (operating cycles) / at 480 V                                                                         | 12 000                                  |
| electrical endurance (operating cycles) / at 600 V                                                                         | 8 400                                   |
| product feature / for neutral conductors / upgradable/retrofitable / short-circuit and overload proof                      | Yes                                     |
| ground-fault monitoring version                                                                                            | Summation current formation L-conductor |
| product function                                                                                                           |                                         |
| • communication function                                                                                                   | Yes                                     |
| • other measurement function                                                                                               | Yes                                     |
| Net Weight                                                                                                                 | 2.5 kg                                  |
| Current                                                                                                                    |                                         |
| marking / according to UL 489 / 100%-rated breaker                                                                         | No                                      |
| operational current                                                                                                        |                                         |
| • at 40 °C                                                                                                                 | 100 A                                   |
| • at 45 °C                                                                                                                 | 100 A                                   |
| • at 50 °C                                                                                                                 | 100 A                                   |
| • at 55 °C                                                                                                                 | 100 A                                   |
| • at 60 °C                                                                                                                 | 100 A                                   |
| • at 65 °C                                                                                                                 | 100 A                                   |

|                                                                                                                    |         |
|--------------------------------------------------------------------------------------------------------------------|---------|
| <ul style="list-style-type: none"> <li>• at 70 °C</li> </ul>                                                       | 100 A   |
| <b>Switching capacity according to IEC 60947</b>                                                                   |         |
| switching capacity class of the circuit breaker                                                                    | M       |
| maximum short-circuit current breaking capacity (I <sub>cu</sub> )                                                 |         |
| <ul style="list-style-type: none"> <li>• at 240 V</li> </ul>                                                       | 85 kA   |
| <ul style="list-style-type: none"> <li>• at 415 V</li> </ul>                                                       | 55 kA   |
| <ul style="list-style-type: none"> <li>• at 690 V</li> </ul>                                                       | 3 kA    |
| operating short-circuit current breaking capacity (I <sub>cs</sub> )                                               |         |
| <ul style="list-style-type: none"> <li>• at 240 V</li> </ul>                                                       | 85 kA   |
| <ul style="list-style-type: none"> <li>• at 415 V</li> </ul>                                                       | 55 kA   |
| <ul style="list-style-type: none"> <li>• at 690 V</li> </ul>                                                       | 3 kA    |
| short-circuit current making capacity (I <sub>cm</sub> )                                                           |         |
| <ul style="list-style-type: none"> <li>• at 240 V</li> </ul>                                                       | 187 kA  |
| <ul style="list-style-type: none"> <li>• at 415 V</li> </ul>                                                       | 121 kA  |
| <ul style="list-style-type: none"> <li>• at 690 V</li> </ul>                                                       | 4.5 kA  |
| <b>Switching capacity according to UL 489</b>                                                                      |         |
| current breaking capacity                                                                                          |         |
| <ul style="list-style-type: none"> <li>• at 240 V</li> </ul>                                                       | 100 kA  |
| <ul style="list-style-type: none"> <li>• at 480 V</li> </ul>                                                       | 35 kA   |
| <ul style="list-style-type: none"> <li>• at 600 V</li> </ul>                                                       | 18 kA   |
| <b>Adjustable parameters</b>                                                                                       |         |
| 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> </ul>                                                        | 40 A    |
| <ul style="list-style-type: none"> <li>• maximum</li> </ul>                                                        | 100 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> </ul>                                                        | 0.5 s   |
| <ul style="list-style-type: none"> <li>• maximum</li> </ul>                                                        | 25 s    |
| adjustable response value setting current (I <sub>sd</sub> ) / of S-trip / with I <sub>0t</sub> characteristic     |         |
| <ul style="list-style-type: none"> <li>• minimum</li> </ul>                                                        | 60 A    |
| <ul style="list-style-type: none"> <li>• maximum</li> </ul>                                                        | 1 000 A |
| adjustable response value setting current (I <sub>sd</sub> ) / of S-trip / with I <sub>2t</sub> characteristic     |         |
| <ul style="list-style-type: none"> <li>• minimum</li> </ul>                                                        | 60 A    |
| <ul style="list-style-type: none"> <li>• maximum</li> </ul>                                                        | 1 000 A |
| adjustable response value delay time (t <sub>sd</sub> ) / for S-tripping / with I <sub>0t</sub> characteristic     |         |
| <ul style="list-style-type: none"> <li>• minimum</li> </ul>                                                        | 0.05 s  |
| <ul style="list-style-type: none"> <li>• maximum</li> </ul>                                                        | 0.5 s   |
| adjustable response value delay time (t <sub>sd</sub> ) / for S-tripping / with I <sub>2t</sub> characteristic     |         |
| <ul style="list-style-type: none"> <li>• minimum</li> </ul>                                                        | 0.05 s  |
| <ul style="list-style-type: none"> <li>• maximum</li> </ul>                                                        | 0.5 s   |
| adjustable response value setting current (I <sub>l</sub> ) / for I-tripping                                       |         |
| <ul style="list-style-type: none"> <li>• minimum</li> </ul>                                                        | 150 A   |
| <ul style="list-style-type: none"> <li>• maximum</li> </ul>                                                        | 1 200 A |
| adjustable current response value current / for G-tripping / with standard characteristic                          |         |
| <ul style="list-style-type: none"> <li>• initial value</li> </ul>                                                  | 20 A    |
| <ul style="list-style-type: none"> <li>• full-scale value</li> </ul>                                               | 100 A   |
| adjustable response value delay time (t <sub>g</sub> ) / for G-tripping / with I <sub>0t</sub> characteristic      |         |
| <ul style="list-style-type: none"> <li>• minimum</li> </ul>                                                        | 0.05 s  |
| <ul style="list-style-type: none"> <li>• maximum</li> </ul>                                                        | 0.8 s   |
| adjustable response value setting current (I <sub>g</sub> ) / for G-tripping / with I <sub>2t</sub> characteristic |         |
| <ul style="list-style-type: none"> <li>• minimum</li> </ul>                                                        | 20 A    |
| <ul style="list-style-type: none"> <li>• maximum</li> </ul>                                                        | 100 A   |
| adjustable response value delay time (t <sub>g</sub> ) / for G-tripping / with I <sub>2t</sub> characteristic      |         |

|                                                               |                             |
|---------------------------------------------------------------|-----------------------------|
| • minimum                                                     | 0.05 s                      |
| • maximum                                                     | 0.8 s                       |
| adjustable setting current (I <sub>N</sub> ) / for N-tripping |                             |
| • minimum                                                     | 0 A                         |
| • maximum                                                     | 0 A                         |
| design of the N-conductor protection                          | adjustable OFF; 20% to 160% |
| product function / grounding protection                       | Yes                         |

#### Mechanical Design

|                        |         |
|------------------------|---------|
| product component      |         |
| • undervoltage release | No      |
| • voltage trigger      | No      |
| • trip indicator       | No      |
| height [in]            | 7.8 in  |
| height                 | 198 mm  |
| width [in]             | 4.13 in |
| width                  | 105 mm  |
| depth [in]             | 3.39 in |
| depth                  | 86 mm   |

#### Connections

|                                                                 |                    |
|-----------------------------------------------------------------|--------------------|
| arrangement of electrical connectors / for main current circuit | Without connection |
| type of electrical connection / for main current circuit        | Without            |

#### 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                |        |
| • 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 [CO <sub>2</sub> eq] / total                | 61.814 kg       |
| global warming potential [CO <sub>2</sub> eq] / during manufacturing | 14.6 kg         |
| global warming potential [CO <sub>2</sub> eq] / during operation     | 48.9 kg         |
| global warming potential [CO <sub>2</sub> eq] / after end of life    | -2.2 kg         |
| Siemens Eco Profile (SEP)                                            | Siemens EcoTech |
| reference code / according to IEC 81346-2                            | Q               |

#### Approvals / Certificates

##### General Product Approval



##### General Product Approval

##### EMV

##### Test Certificates

##### Maritime application

##### [Miscellaneous](#)



##### [Type Test Certificates/Test Report](#)



##### Maritime application

##### other



[Confirmation](#)

[Miscellaneous](#)

Dangerous goods

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=3VA6210-5KQ31-0AA0>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3VA6210-5KQ31-0AA0>

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

[https://www.automation.siemens.com/bilddb/cax\\_en.aspx?mlfb=3VA6210-5KQ31-0AA0](https://www.automation.siemens.com/bilddb/cax_en.aspx?mlfb=3VA6210-5KQ31-0AA0)

CAX-Online-Generator

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

Tender specifications

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





