



circuit breaker 3VA6 UL Frame 600 breaking capacity class H 65 kA @ 480 V 4-pole, line protection ETU860, LSIG, In=400 A overload protection, 100% rated Ir=160 A...400 A short-circuit protection Isd=0.6..10x In, li=1.5..12x In neutral conductor protection adjustable (OFF, up to 160%) ground-fault protection Ig=0.2...1 x In= tg=0.05-0.8s without connection

| Model                                                                                                                      |                                             |
|----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| product brand name                                                                                                         | SENTRON                                     |
| product designation                                                                                                        | Molded-case circuit breaker                 |
| product designation / according to UL file                                                                                 | HLAE                                        |
| 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                                                                                                            | 4                                           |
| General technical data                                                                                                     |                                             |
| insulation voltage / rated value                                                                                           | 800 V                                       |
| operating voltage / at AC / rated value                                                                                    | 690 V                                       |
| power loss [W] / maximum                                                                                                   | 70 W                                        |
| power loss [W] / for rated value of the current / at AC / in hot operating state / per pole                                | 23.33 W                                     |
| mechanical service life (operating cycles) / typical                                                                       | 20 000                                      |
| electrical endurance (operating cycles) / at AC-1 / at 380/415 V                                                           | 4 000                                       |
| electrical endurance (operating cycles) / at AC-1 / at 690 V                                                               | 3 500                                       |
| electrical endurance (operating cycles) / at 480 V                                                                         | 4 000                                       |
| electrical endurance (operating cycles) / at 600 V                                                                         | 3 500                                       |
| product feature / for neutral conductors / upgradable/retrofitable / short-circuit and overload proof                      | No                                          |
| ground-fault monitoring version                                                                                            | Summation current formation L + N-conductor |
| product function                                                                                                           |                                             |
| • communication function                                                                                                   | Yes                                         |
| • other measurement function                                                                                               | Yes                                         |
| Net Weight                                                                                                                 | 6.9 kg                                      |
| Current                                                                                                                    |                                             |
| marking / according to UL 489 / 100%-rated breaker                                                                         | Yes                                         |
| operational current                                                                                                        |                                             |
| • at 40 °C                                                                                                                 | 400 A                                       |
| • at 45 °C                                                                                                                 | 400 A                                       |
| • at 50 °C                                                                                                                 | 400 A                                       |
| • at 55 °C                                                                                                                 | 400 A                                       |
| • at 60 °C                                                                                                                 | 400 A                                       |
| • at 65 °C                                                                                                                 | 400 A                                       |

|                                                                                                                    |         |
|--------------------------------------------------------------------------------------------------------------------|---------|
| • at 70 °C                                                                                                         | 400 A   |
| <b>Switching capacity according to IEC 60947</b>                                                                   |         |
| switching capacity class of the circuit breaker                                                                    | H       |
| maximum short-circuit current breaking capacity (I <sub>cu</sub> )                                                 |         |
| • at 240 V                                                                                                         | 110 kA  |
| • at 415 V                                                                                                         | 85 kA   |
| • at 690 V                                                                                                         | 6 kA    |
| operating short-circuit current breaking capacity (I <sub>cs</sub> )                                               |         |
| • at 240 V                                                                                                         | 110 kA  |
| • at 415 V                                                                                                         | 85 kA   |
| • at 690 V                                                                                                         | 6 kA    |
| short-circuit current making capacity (I <sub>cm</sub> )                                                           |         |
| • at 240 V                                                                                                         | 242 kA  |
| • at 415 V                                                                                                         | 187 kA  |
| • at 690 V                                                                                                         | 9 kA    |
| <b>Switching capacity according to UL 489</b>                                                                      |         |
| current breaking capacity                                                                                          |         |
| • at 240 V                                                                                                         | 100 kA  |
| • at 480 V                                                                                                         | 65 kA   |
| • at 600 V                                                                                                         | 22 kA   |
| <b>Adjustable parameters</b>                                                                                       |         |
| adjustable response value setting current (I <sub>r</sub> ) / of the L-trip / with I <sub>2t</sub> characteristic  |         |
| • minimum                                                                                                          | 150 A   |
| • maximum                                                                                                          | 400 A   |
| adjustable response value delay time (t <sub>r</sub> ) / for L-tripping / with I <sub>2t</sub> characteristic      |         |
| • minimum                                                                                                          | 0.5 s   |
| • maximum                                                                                                          | 25 s    |
| adjustable response value setting current (I <sub>sd</sub> ) / of S-trip / with I <sub>0t</sub> characteristic     |         |
| • minimum                                                                                                          | 240 A   |
| • maximum                                                                                                          | 4 000 A |
| adjustable response value setting current (I <sub>sd</sub> ) / of S-trip / with I <sub>2t</sub> characteristic     |         |
| • minimum                                                                                                          | 240 A   |
| • maximum                                                                                                          | 4 000 A |
| adjustable response value delay time (t <sub>sd</sub> ) / for S-tripping / with I <sub>0t</sub> characteristic     |         |
| • minimum                                                                                                          | 0.05 s  |
| • maximum                                                                                                          | 0.5 s   |
| adjustable response value delay time (t <sub>sd</sub> ) / for S-tripping / with I <sub>2t</sub> characteristic     |         |
| • minimum                                                                                                          | 0.05 s  |
| • maximum                                                                                                          | 0.5 s   |
| adjustable response value setting current (I <sub>l</sub> ) / for I-tripping                                       |         |
| • minimum                                                                                                          | 600 A   |
| • maximum                                                                                                          | 4 800 A |
| adjustable current response value current / for G-tripping / with standard characteristic                          |         |
| • initial value                                                                                                    | 80 A    |
| • full-scale value                                                                                                 | 400 A   |
| adjustable response value delay time (t <sub>g</sub> ) / for G-tripping / with I <sub>0t</sub> characteristic      |         |
| • minimum                                                                                                          | 0.05 s  |
| • maximum                                                                                                          | 0.8 s   |
| adjustable response value setting current (I <sub>g</sub> ) / for G-tripping / with I <sub>2t</sub> characteristic |         |
| • minimum                                                                                                          | 80 A    |
| • maximum                                                                                                          | 400 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                                                     | 80 A                        |
| • maximum                                                     | 600 A                       |
| design of the N-conductor protection                          | adjustable OFF; 20% to 150% |
| product function / grounding protection                       | Yes                         |

#### Mechanical Design

|                        |         |
|------------------------|---------|
| product component      |         |
| • undervoltage release | No      |
| • voltage trigger      | No      |
| • trip indicator       | No      |
| height [in]            | 9.76 in |
| height                 | 248 mm  |
| width [in]             | 7.24 in |
| width                  | 184 mm  |
| depth [in]             | 4.33 in |
| depth                  | 110 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                | 495 kg          |
| global warming potential [CO <sub>2</sub> eq] / during manufacturing | 28.7 kg         |
| global warming potential [CO <sub>2</sub> eq] / during operation     | 470 kg          |
| global warming potential [CO <sub>2</sub> eq] / after end of life    | -4.07 kg        |
| Siemens Eco Profile (SEP)                                            | Siemens EcoTech |
| reference code / according to IEC 81346-2                            | Q               |

#### Approvals / Certificates

##### General Product Approval



[Confirmation](#)



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

[Miscellaneous](#)



[Type Test Certificates/Test Report](#)



|                      |       |                 |             |
|----------------------|-------|-----------------|-------------|
| Maritime application | other | Dangerous goods | Environment |
|----------------------|-------|-----------------|-------------|



[Confirmation](#)

[Miscellaneous](#)

[Transport Information](#)



## Environment



[Environmental Confirmations](#)

## 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=3VA6440-6KQ41-2AA0>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3VA6440-6KQ41-2AA0>

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

[https://www.automation.siemens.com/bilddb/cax\\_en.aspx?mlfb=3VA6440-6KQ41-2AA0](https://www.automation.siemens.com/bilddb/cax_en.aspx?mlfb=3VA6440-6KQ41-2AA0)

### 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>)





