



circuit breaker 3VA1 IEC Frame 160 breaking capacity class H  $I_{cu}=70 \text{ kA} @ 415 \text{ V}$   
4-pole, line protection TM210, FTFM,  $I_n=40 \text{ A}$  overload protection  $I_r=40 \text{ A}$   
permanently set short-circuit protection  $I_i=10 \times I_n$  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                                                                     | TM210                       |
| 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                                                                              | 10.8 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                                                                                            | 1.269 kg                    |
| Current                                                                                               |                             |
| operational current                                                                                   |                             |
| • at 40 °C                                                                                            | 40 A                        |
| • at 45 °C                                                                                            | 40 A                        |
| • at 50 °C                                                                                            | 40 A                        |
| • at 55 °C                                                                                            | 39 A                        |
| • at 60 °C                                                                                            | 39 A                        |
| • at 65 °C                                                                                            | 38 A                        |
| • at 70 °C                                                                                            | 37 A                        |
| Switching capacity according to IEC 60947                                                             |                             |
| switching capacity class of the circuit breaker                                                       | H                           |
| maximum short-circuit current breaking capacity ( $I_{cu}$ )                                          |                             |
| • at 240 V                                                                                            | 100 kA                      |
| • at 415 V                                                                                            | 70 kA                       |
| • at 440 V                                                                                            | 55 kA                       |
| • at 500 V                                                                                            | 10 kA                       |
| • at 690 V                                                                                            | 10 kA                       |

|                                                         |                                                                                                                                                                |
|---------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| operating short-circuit current breaking capacity (Ics) |                                                                                                                                                                |
| • at 240 V                                              | 100 kA                                                                                                                                                         |
| • at 415 V                                              | 70 kA                                                                                                                                                          |
| • at 440 V                                              | 40 kA                                                                                                                                                          |
| • at 500 V                                              | 5 kA                                                                                                                                                           |
| • at 690 V                                              | 5 kA                                                                                                                                                           |
| short-circuit current making capacity (Icm)             |                                                                                                                                                                |
| • at 240 V                                              | 220 kA                                                                                                                                                         |
| • at 415 V                                              | 154 kA                                                                                                                                                         |
| • at 440 V                                              | 121 kA                                                                                                                                                         |
| • at 500 V                                              | 17 kA                                                                                                                                                          |
| • at 690 V                                              | 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 (Ir) / of the L-trip / with I2t characteristic |         |
| • minimum                                                                                | 40 A    |
| • maximum                                                                                | 40 A    |
| adjustable response value delay time (tr) / for L-tripping / with I2t characteristic     |         |
| • minimum                                                                                | 1 s     |
| • maximum                                                                                | 1 s     |
| adjustable response value setting current (Ii) / for I-tripping                          |         |
| • minimum                                                                                | 400 A   |
| • maximum                                                                                | 400 A   |
| adjustable setting current (InN) / for N-tripping                                        |         |
| • minimum                                                                                | 0 A     |
| • maximum                                                                                | 0 A     |
| design of the N-conductor protection                                                     | without |
| product function / grounding protection                                                  | No      |

#### Mechanical Design

|                                                                                           |                    |
|-------------------------------------------------------------------------------------------|--------------------|
| product component                                                                         |                    |
| • undervoltage release                                                                    | No                 |
| • voltage trigger                                                                         | No                 |
| • trip indicator                                                                          | 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 mm²) |
| 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 |
|--------------------------------------------|-----|

#### 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



#### 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=3VA1140-6ED46-0AA0>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3VA1140-6ED46-0AA0>

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

[https://www.automation.siemens.com/bilddb/cax\\_en.aspx?mlfb=3VA1140-6ED46-0AA0](https://www.automation.siemens.com/bilddb/cax_en.aspx?mlfb=3VA1140-6ED46-0AA0)

##### CAX-Online-Generator

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

##### Tender specifications

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





