

**PRODUCT-DETAILS** 

## NFZ31E-20 NFZ31E-20 12-20VDC Contactor Relay



## General Information

| Extended Product Type | NFZ31E-20                          |
|-----------------------|------------------------------------|
| Product ID            | 1SBH136001R2031                    |
| EAN                   | 3471523101807                      |
| Catalog Description   | NFZ31E-20 12-20VDC Contactor Relay |

Long Description

NFZ contactor relays are used for switching auxiliary and control circuits. NFZ contactor relays include an electronic coil interface accepting a wide control voltage Uc min. ... Uc max. Only four coils cover control voltages between 24...250 V 50/60 Hz or 12...250 V DC. NF contactor relays can manage large control voltage variations. One coil can be used for different control voltages used worldwide without any coil change NFZ contactor relays allow direct control by PLC-output ≥ 24 V DC 500 mA and obtain a reduced holding coil consumption. NFZ contactor relays withstand short voltage dips and voltage sags (SEMI F47-0706 compliance) between 24...250 V 50/60 Hz NFZ contactor relays have built-in surge protection and do not require additional surge suppressors - Poles: 4-pole contactor relays (mechanically-linked auxiliary contacts compliant with Annex L of IEC 60947-5-1 and including the "Mechanically Linked" symbol on the contactor relay side) - Control Circuit: DC operated for NF..Z-20 contactors. Only NF..Z-20 contactor relays need to respect the polarity on the coil terminals (A1+ and A2-). - Accessories: a wide range of Accessories is available.

## Ordering

| Minimum Order Quantity | 1 piece  |
|------------------------|----------|
| Customs Tariff Number  | 85364900 |

| Popular Downloads   |   |
|---|---|
| Instructions and Manuals                                    | 1SBC101027M6801   |
| Dimensions  |   |
| Product Net Width   | 45 mm   |
| Product Net Depth / Length                                  | 77 mm   |
| Product Net Height  | 86 mm   |
| Product Net Weight  | 0.31 kg   |
| Technical   |   |
| Number of Auxiliary<br>Contacts NO                          | 3   |
| Number of Auxiliary<br>Contacts NC                          | 1   |
| Standards   | IEC 60947-5-1 and EN 60947-5-1, UL 508, CSA C22.2 N°14  |
| Rated Operational Voltage                                   | Auxiliary Circuit 690 V<br>Main Circuit 690 V   |
| Rated Frequency (f)   | Auxiliary Circuit 50 / 60 Hz  |
| Conventional Free-air<br>Thermal Current (I <sub>th</sub> ) | acc. to IEC 60947-5-1, q = 40 °C 16 A   |
| Rated Operational Current AC-15 ( $I_e$ )                   | (500 V) 2 A<br>(690 V) 2 A<br>(24 / 127 V) 6 A<br>(220 / 240 V) 4 A<br>(400 / 440 V) 3 A  |
| Rated Short-time<br>Withstand Current (I <sub>cw</sub> )    | for 0.1 s 140 A<br>for 1 s 100 A  |
| Maximum Electrical<br>Switching Frequency                   | (AC-15) 1200 cycles per hour<br>(DC-13) 900 cycles per hour   |
| Rated Operational Current DC-13 (I <sub>e</sub> )           | (24 V) 6 A / 144 W<br>(48 V) 2.8 A / 134 W<br>(72 V) 1 A / 72 W<br>(110 V) 0.55 A / 60 W<br>(125 V) 0.55 A / 69 W<br>(220 V) 0.27 A / 60 W<br>(250 V) 0.27 A / 68 W<br>(400 V) 0.15 A / 60 W<br>(500 V) 0.13 A / 65 W<br>(600 V) 0.1 A / 60 W |
| Rated Insulation Voltage (U <sub>i</sub> )                  | acc. to IEC 60947-5-1 and VDE 0110 (Gr. C) 690 V<br>acc. to UL/CSA 600 V  |
| Rated Impulse Withstand<br>Voltage (U <sub>imp</sub> )      | 6 kV  |
| Maximum Mechanical<br>Switching Frequency                   | 6000 cycles per hour  |
| Rated Control Circuit<br>Voltage (U <sub>c</sub> )          | 50 Hz -<br>50 Hz / 60 Hz 100 250 V<br>60 Hz -<br>DC Operation 12 20 V   |
| Operate Time  | Between Coil De-energization and NC Contact Closing 13 98 ms Between Coil De-energization and NO Contact Opening 11 95 ms Between Coil Energization and NC Contact Opening 38 90 ms   |

GL Certificate

| Auxiliary Circuit   Flexible with Insulated Fermile 2x 0.7 5 1.5 mm Flexible with Insulated Fermile 1x 0.7 5 2.5 mm Flexible with Insulated Fermile 1x 0.7 5 2.5 mm Flexible with Insulated Fermile 1x 0.7 5 2.5 mm Flexible with Insulated Fermile 1x 0.7 5 2.5 mm Flexible with Insulated Fermile 1x 0.7 5 2.5 mm Flexible with Insulated Fermile 1x 0.7 5 2.5 mm Flexible with Insulated Fermile 1x 0.7 5 2.5 mm Rigid 1/2x 1 2.5 mm Rigid 1/   |  | Between Coil Energization and NO Contact Closing 40 95 ms  |
|--|--|--|
| Auxiliary Circuit Flexible with Insulated Fermile 2x 0.7 5 1.5 mm* Flexible with Insulated Fermile 1x 0.7 5 2.5 mm* Flexible with Insulated Fermile 1x 0.7 5 2.5 mm* Flexible with Insulated Fermile 1x 0.7 5 2.5 mm* Flexible with Insulated Fermile 1x 0.7 5 2.5 mm* Flexible with Insulated Fermile 1x 0.7 5 2.5 mm* Flexible with Insulated Fermile 1x 0.7 5 2.5 mm* Flexible with Insulated Fermile 1x 0.7 5 2.5 mm* Rigid 1x2x 1 2.5 mm* Rigi  | Connecting Capacity                            | Flexible with Ferrule 1/2x 0.75 2.5 mm <sup>2</sup>  |
| Comecting Capacity Control Circuit  Flexible with insulated Fermile 1x 0.75  | Auxiliary Circuit                              | Flexible with Insulated Ferrule 2x 0.75 1.5 mm²  |
| Pleable with Insulated Ferrule 1x 0.75 2.5 mm   Flexible with Insulated Ferrule 1x 0.75 1.5 mm   Flexible with Insulated Ferrule 2x 0.75 1.5 mm   Rigid 1/2x 1 2.5 mm   Rigid 1/2x 1 .   |  | Flexible with Insulated Ferrule 1x 0.75 2.5 mm <sup>2</sup><br>Rigid 1/2x 1 2.5 mm <sup>2</sup>  |
| Pleasible with Insulated Ferrule 2 to 7.5 1.5 mm   Right 17.8 1.2 mm   Right 17.8 mm   | Connecting Capacity                            | Flexible with Ferrule 1/2x 0.75 2.5 mm²  |
| Rigid 1/2x 1 2.5 mm/  Wire Stripping Length Auxiliary Circuit 10 mm Control Circuit 11 Mm Control Circuit 1    | Control Circuit                                |  |
| Control Circuit 10 mm  |  | Rigid 1/2x 1 2.5 mm <sup>2</sup>   |
| Control   Cont   | Wire Stripping Length                          | Auxiliary Circuit 10 mm<br>Control Circuit 10 mm   |
| Terminal Type  Terminal Type  Terminal Terminal UL/CSA  Tightening Torque UL/CSA  Tolse to Contactor for Storage -80 +80 °C Near Contactor for Storage -80 +80 °C Near Contactor for Operation in Free Air -40 +70 °C Near Contactor for Operation in Free Air -40 +70 °C Near Contactor for Storage -80 +80 °C Near Contactor for Storage -80 °C Near Contactor   | Degree of Protection                           | acc. to IEC 60529, IEC 60947-1, EN 60529 Auxiliary Terminals IP40<br>acc. to IEC 60529, IEC 60947-1, EN 60529 Coil Terminals IP20  |
| Tightening Torque  LUCSA  Environmental  Ambient Air Temperature  Close to Contactor for Storage -60 +80 °C Near Contactor for Operation in Free Air -40 +70 °C Climatic Withstand  Category B according to IEC 60947-1 Annex Q Maximum Operating  Altitude Permissible  Resistance to Vibrations  5 300 Hz 4 g closed position / 2 g open position acc. to IEC 60088-2-6  Resistance to Shock acc.  Closed, Shock Direction: B1 5 K40 Open, Shock Direction: B1 5 K40 Shock Direction: B2 15 K40 Shock Direction: C1 25 K40 Shock Direction: C2 55 K40 Shock Direction: C2 55 K40 Shock Direction: C2 55 K40 Shock Direction: C1 25 K40 Shock Direction: C1 25 K40 Shock Direction: C2 55 K40 Shock Direction: C1 25 K40 Shock Direction: C2 55 K40 Shock Direction: D2 15 K40 Shock Direction: C2 55 K40 Shock Directi             | Terminal Type                                  | Screw Terminals  |
| Tightening Torque  LUCSA  Environmental  Ambient Air Temperature  Close to Contactor for Storage -60 +80 °C Near Contactor for Operation in Free Air -40 +70 °C Climatic Withstand  Category B according to IEC 60947-1 Annex Q Maximum Operating  Altitude Permissible  Resistance to Vibrations  5 300 Hz 4 g closed position / 2 g open position acc. to IEC 60088-2-6  Resistance to Shock acc.  Closed, Shock Direction: B1 5 K40 Open, Shock Direction: B1 5 K40 Shock Direction: B2 15 K40 Shock Direction: C1 25 K40 Shock Direction: C2 55 K40 Shock Direction: C2 55 K40 Shock Direction: C2 55 K40 Shock Direction: C1 25 K40 Shock Direction: C1 25 K40 Shock Direction: C2 55 K40 Shock Direction: C1 25 K40 Shock Direction: C2 55 K40 Shock Direction: D2 15 K40 Shock Direction: C2 55 K40 Shock Directi             |  |  |
| Environmental  Ambient Air Temperature  Close to Contactor for Storage -60 +80 °C Near Contactor for Operation in Free Air -40 +70 °C Climatic Withstand  Category B according to IEC 60947-1 Annex Q Maximum Operating  Altitude Permissible  Resistance to Vibrations acc. to IEC 60068-2-6  Resistance to Shock acc.  Closed, Shock Direction: B1 25 K40 Shock Direction: B1 25 K40 Shock Direction: A30 K40 Shock Direction: A30 K40 Shock Direction: A30 K40 Shock Direction: C1 25 K40 Shock Direction: C2 25         | Technical UL/CSA                               |  |
| Environmental  Ambient Air Temperature  Close to Contactor for Storage -60 +80 °C Near Contactor for Operation in Free Air -40 +70 °C Climatic Withstand  Category B according to IEC 60947-1 Annex Q Maximum Operating  Altitude Permissible  Resistance to Vibrations acc. to IEC 60088-2-6  Resistance to Shock acc.  Closed, Shock Direction: B 1 5 K40 Shock Direction: B 1 5 K40 Shock Direction: B 15 K40 Shock Direction: C 2 5 K40 Shock Direction: C 2          | Tightening Torque                              | Auxiliary Circuit 11 IA  |
| Ambient Air Temperature Close to Contactor for Storage -60 +80 °C Near Contactor for Operation in Free Air -40 +77 °C Climatic Withstand Category B according to IEC 60947-1 Annex Q Maximum Operating Altitude Permissible Resistance to Vibrations acc. to IEC 60068-2-6 Resistance to Shock acc. Closed, Shock Direction: B1 25 K40 Open, Shock Direction: B1 25 K40 Shock Direction: B1 5 K40 Shock Direction: B1 5 K40 Shock Direction: B2 15 K40 Shock Direction: B2 15 K40 Shock Direction: C1 25 K40 Shock Direction: C1 25 K40 Shock Direction: C1 25 K40 Shock Direction: C2 25 K40 RoHS Status Following EU Directive 2011/65/EU  Certificates and Declarations (Document Number)  ABS Certificate ABS_15-GE1349500-PDA_90682247 BV Certificate BV_2634H2489980 CB Certificate CCC CERTIficate CCCC CCCC CCCC CCCC CCCC CCCC CCCC CC  | UL/CSA   | Control Circuit 11 IA  |
| Ambient Air Temperature Close to Contactor for Storage -60 +80 °C Near Contactor for Operation in Free Air -40 +77 °C Climatic Withstand Category B according to IEC 60947-1 Annex Q Maximum Operating Altitude Permissible Resistance to Vibrations acc. to IEC 60068-2-6 Resistance to Shock acc. Closed, Shock Direction: B1 25 K40 Open, Shock Direction: B1 25 K40 Shock Direction: B1 5 K40 Shock Direction: B1 5 K40 Shock Direction: B2 15 K40 Shock Direction: B2 15 K40 Shock Direction: C1 25 K40 Shock Direction: C1 25 K40 Shock Direction: C1 25 K40 Shock Direction: C2 25 K40 RoHS Status Following EU Directive 2011/65/EU  Certificates and Declarations (Document Number)  ABS Certificate ABS_15-GE1349500-PDA_90682247 BV Certificate BV_2634H2489980 CB Certificate CCC CERTIficate CCCC CCCC CCCC CCCC CCCC CCCC CCCC CC  | Environmental                                  |  |
| Near Contactor for Operation in Free Air -40 +70 °C Climatic Withstand Category B according to IEC 60947-1 Annex Q Maximum Operating Altitude Permissible Resistance to Vibrations acc. to IEC 60068-2-6 Resistance to Shock acc. Closed, Shock Direction: B1 25 K40 Open, Shock Direction: B1 25 K40 Shock Direction: B1 25 K40 Shock Direction: B2 15 K40 Shock Direction: B2      |  | Close to Contact of Co |
| Maximum Operating Altitude Permissible         3000 m           Resistance to Vibrations acc. to IEC 60068-2-6         5 300 Hz 4 g closed position / 2 g open position acc. to IEC 60068-2-6           Resistance to Shock acc.         Closed, Shock Direction: B1 25 K40 Open, Shock Direction: B1 5 K40 Shock Direction: B1 5 K40 Shock Direction: C1 25 K40 Shock Direction: C2 25 K40 Shock Directive 2011/65/EU           Certificates ABS_15-GE1349500-PDA_90682247           BV Certificate         BV_2634124899B0           CCC Certificate         CB_2629303000185           CQC Certificate         CQC201101030326793           CUL Certificate         UL_20180227_E252354_2_1           DNV-GL_TAE00001BV-3         DNV-GL_TAE00001BV-3           DNV GL Certificate         DNV-GL_TAE00001BV-3           EAC_RU C-FR ME77 B03544   | Ambient Air Temperature                        | · · · · · · · · · · · · · · · · · · ·  |
| Resistance to Vibrations acc. to IEC 60068-2-6   S 300 Hz 4 g closed position / 2 g open position acc. to IEC 60068-2-6   Closed, Shock Direction: B1 25 K40 Open, Shock Direction: C1 25 K40 Open Open Open Open Open Open Open Open  | Climatic Withstand                             | Category B according to IEC 60947-1 Annex Q  |
| acc. to IEC 60068-2-6  Resistance to Shock acc.  Closed, Shock Direction: B1 25 K40 Open, Shock Direction: B1 25 K40 Shock Direction: A 30 K40 Shock Direction: A 30 K40 Shock Direction: C1 25 K40 Shock Direction: C2 C4 Shock Direction: C | Maximum Operating Altitude Permissible         | 3000 m   |
| to IEC 60068-2-27  Open, Shock Direction: B1 5 K40 Shock Direction: A 30 K40 Shock Direction: C1 25 K40 Shock Direction: C2 15 K40 Shock Direction: C2 25 K4 | Resistance to Vibrations acc. to IEC 60068-2-6 | 5 300 Hz 4 g closed position / 2 g open position   |
| Shock Direction: A 30 K40 Shock Direction: B2 15 K40 Shock Direction: C1 25 K40 Shock Direction: C2 25 K40 Shock Directive 2011/65/EU  ROHS Status  Following EU Directive 2011/65/EU  ABS_15-GE1349500-PDA_90682247 BV Certificate  BV_2634H24899B0 CB Certificate  CB_SE-93051 CCC Certificate  CQC2019010303267993 CUL Certificate  UL_20180227_E252354_2_1 Declaration of Conformity  CQC2011010303465426 CCC  Declaration of Conformity  CQC2011010303465426  DNV Certificate  DNV Certificate  DNV-GL_TAE00001BV-3 DNV GL Certificate  EAC_RU C-FR ME77 B03544   | Resistance to Shock acc.                       | Closed, Shock Direction: B1 25 K40   |
| Shock Direction: B2 15 K40 Shock Direction: C2 25 K40 Shock Direction: C1 25 K40 Shock Direction: C1 25 K40 Shock Direction: C2 25 K40 Shock Direction: C2 25 K40 Shock Directive 2011/65/EU    Certificates and Declarations (Document Number)  | to IEC 60068-2-27                              | Open, Shock Direction: B1 5 K40  |
| Shock Direction: C1 25 K40   |  |  |
| RoHS Status         Following EU Directive 2011/65/EU           Certificates and Declarations (Document Number)           ABS Certificate         ABS_15-GE1349500-PDA_90682247           BV Certificate         BV_2634H24899B0           CB Certificate         CB_SE-93051           CCC Certificate         2020980303000185           CQC Certificate         CQC2019010303267993           cUL Certificate         UL_20180227_E252354_2_1           Declaration of Conformity         CQC2011010303465426           - CCC         - CCC           Declaration of Conformity         1SBD250005U1000           - CE         DNV-GL_TAE00001BV-3           DNV GL Certificate         DNV-GL_TAE00001BV-3           EAC_RU C-FR ME77 B03544   |  | Shock Direction: C1 25 K40   |
| Certificates and Declarations (Document Number)           ABS Certificate         ABS_15-GE1349500-PDA_90682247           BV Certificate         BV_2634H24899B0           CB Certificate         CB_SE-93051           CCC Certificate         2020980303000185           CQC Certificate         CQC2019010303267993           cUL Certificate         UL_20180227_E252354_2_1           Declaration of Conformity         CQC2011010303465426           - CCC         CCC           Declaration of Conformity         1SBD250005U1000           - CE         DNV-GL_TAE00001BV-3           DNV GL Certificate         DNV-GL_TAE00001BV-3           EAC Certificate         EAC_RU C-FR ME77 B03544   |  | Shock Direction: C2 25 K40   |
| ABS Certificate ABS_15-GE1349500-PDA_90682247 BV Certificate BV_2634H24899B0 CB Certificate CB_SE-93051 CCC Certificate 2020980303000185 CQC Certificate CQC2019010303267993 cUL Certificate UL_20180227_E252354_2_1 Declaration of Conformity CQC2011010303465426 - CCC Declaration of Conformity 1SBD250005U1000 - CE DNV Certificate DNV-GL_TAE00001BV-3 DNV GL Certificate DNV-GL_TAE00001BV-3 EAC Certificate EAC_RU C-FR ME77 B03544   | RoHS Status                                    | Following EU Directive 2011/65/EU  |
| ABS Certificate ABS_15-GE1349500-PDA_90682247 BV Certificate BV_2634H24899B0 CB Certificate CB_SE-93051 CCC Certificate 2020980303000185 CQC Certificate CQC2019010303267993 cUL Certificate UL_20180227_E252354_2_1 Declaration of Conformity CQC2011010303465426 - CCC Declaration of Conformity 1SBD250005U1000 - CE DNV Certificate DNV-GL_TAE00001BV-3 DNV GL Certificate DNV-GL_TAE00001BV-3 EAC Certificate EAC_RU C-FR ME77 B03544   | Out if the seal Dealers in the Control         |  |
| BV Certificate         BV_2634H24899B0           CB Certificate         CB_SE-93051           CCC Certificate         2020980303000185           CQC Certificate         CQC2019010303267993           cUL Certificate         UL_20180227_E252354_2_1           Declaration of Conformity         CQC2011010303465426           - CCC         - CCC           Declaration of Conformity         1SBD250005U1000           - CE         DNV-GL_TAE00001BV-3           DNV GL Certificate         DNV-GL_TAE00001BV-3           EAC Certificate         EAC_RU C-FR ME77 B03544   | · · · · · · · · · · · · · · · · · · ·          | ·  |
| CB Certificate         CB_SE-93051           CCC Certificate         2020980303000185           CQC Certificate         CQC2019010303267993           cUL Certificate         UL_20180227_E252354_2_1           Declaration of Conformity         CQC2011010303465426           - CCC         - CE           DNV Certificate         DNV-GL_TAE00001BV-3           DNV GL Certificate         DNV-GL_TAE00001BV-3           EAC Certificate         EAC_RU C-FR ME77 B03544  |  |  |
| CCC Certificate         202098030303000185           CQC Certificate         CQC2019010303267993           cUL Certificate         UL_20180227_E252354_2_1           Declaration of Conformity         CQC2011010303465426           - CCC         - CCC           Declaration of Conformity         1SBD250005U1000           - CE         DNV-GL_TAE00001BV-3           DNV Certificate         DNV-GL_TAE00001BV-3           EAC Certificate         EAC_RU C-FR ME77 B03544  |  |  |
| CQC Certificate         CQC2019010303267993           cUL Certificate         UL_20180227_E252354_2_1           Declaration of Conformity         CQC2011010303465426           - CCC         1SBD250005U1000           - CE         DNV-GL_TAE00001BV-3           DNV GL Certificate         DNV-GL_TAE00001BV-3           EAC Certificate         EAC_RU C-FR ME77 B03544  |  |  |
| cUL Certificate         UL_20180227_E252354_2_1           Declaration of Conformity - CCC         CQC2011010303465426           Declaration of Conformity - CE         1SBD250005U1000           DNV Certificate         DNV-GL_TAE00001BV-3           DNV GL Certificate         DNV-GL_TAE00001BV-3           EAC Certificate         EAC_RU C-FR ME77 B03544  |  |  |
| Declaration of Conformity - CCC         CQC2011010303465426           Declaration of Conformity - CE         1SBD250005U1000           DNV Certificate         DNV-GL_TAE00001BV-3           DNV GL Certificate         DNV-GL_TAE00001BV-3           EAC Certificate         EAC_RU C-FR ME77 B03544  | - <u>'</u>                                     | CQC2019010303267993  |
| - CCC  Declaration of Conformity 1SBD250005U1000 - CE  DNV Certificate DNV-GL_TAE00001BV-3  DNV GL Certificate DNV-GL_TAE00001BV-3  EAC Certificate EAC_RU C-FR ME77 B03544  | cUL Certificate                                | UL_20180227_E252354_2_1  |
| - CE         DNV-GL_TAE00001BV-3           DNV Certificate         DNV-GL_TAE00001BV-3           DNV GL Certificate         DNV-GL_TAE00001BV-3           EAC Certificate         EAC_RU C-FR ME77 B03544  | Declaration of Conformity - CCC                | CQC2011010303465426  |
| DNV GL Certificate DNV-GL_TAE00001BV-3  EAC Certificate EAC_RU C-FR ME77 B03544  | Declaration of Conformity - CE                 | 1SBD250005U1000  |
| EAC Certificate EAC_RU C-FR ME77 B03544  | DNV Certificate                                | DNV-GL_TAE00001BV-3  |
|  | DNV GL Certificate                             | DNV-GL_TAE00001BV-3  |
| Environmental Information 1SBD250151E1000  | EAC Certificate                                | EAC_RU C-FR ME77 B03544  |
|  | Environmental Information                      | 1SBD250151E1000  |

DNV-GL\_TAE00001BV-3

| GOST Certificate         | GOST_POCCFR.ME77.B07174.pdf |
|--------------------------|-----------------------------|
| Instructions and Manuals | 1SBC101027M6801             |
| LR Certificate           | LRS_C1400038                |
| RINA Certificate         | RINA_ELE240318XG            |
| RMRS Certificate         | RMRS_1802702280             |
| RoHS Information         | 1SBD250005U1000             |
| UL Certificate           | UL_20130206-E252354-2-1     |
| UL Listing Card          | UL_E252354                  |

| box 1 piece   |
|---------------|
| 87 mm         |
| 79 mm         |
| 47 mm         |
| 0.31 kg       |
| 3471523101807 |
| box 27 piece  |
| 250 mm        |
| 300 mm        |
| 315 mm        |
| 16.74 kg      |
| 1296 piece    |

| Classifications            |                            |
|----------------------------|----------------------------|
| Object Classification Code | К                          |
| ETIM 4                     | EC000196 - Contactor relay |
| ETIM 5                     | EC000196 - Contactor relay |
| ETIM 6                     | EC000196 - Contactor relay |
| ETIM 7                     | EC000196 - Contactor relay |
| eClass                     | V11.0 : 27371003           |
| UNSPSC                     | 39121500                   |
| E-Number (Finland)         | 3706410                    |

## Categories

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