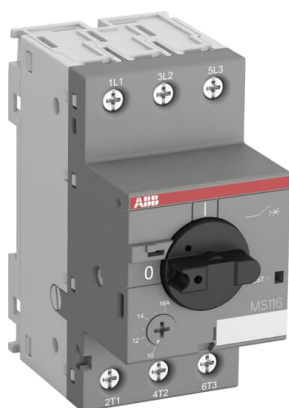


PRODUCT-DETAILS

# MS116-16

## MS116-16 Manual Motor Starter



### General Information

|                       |                               |
|-----------------------|-------------------------------|
| Extended Product Type | MS116-16                      |
| Product ID            | 1SAM250000R1011               |
| EAN                   | 4013614320347                 |
| Catalog Description   | MS116-16 Manual Motor Starter |

#### Long Description

The MS116-16 manual motor starter (also known as motor protection circuit breaker or manual motor protector) is a compact 45 mm width device with a rated operational current of  $I_e = 16.0$  A. This device is used to manually switch on and off motors and to protect them reliably and without the need for a fuse from short-circuits, overload and phase failures. The manual motor starter offers a rated service short-circuit breaking capacity  $I_{cs} = 16$  kA at 400 VAC and trip class 10A. Further features are the build-in disconnect function, temperature compensation, trip-free mechanism and a rotary handle with a clear switch position indication. The manual motor starter is suitable for three- and single-phase applications. Auxiliary contacts, signaling contacts, undervoltage releases, shunt trips, 3-phase bus bars, power in-feed blocks and locking devices for protection against unauthorized changes are available as accessory.

### Ordering

|                        |          |
|------------------------|----------|
| Minimum Order Quantity | 1 piece  |
| Customs Tariff Number  | 85362010 |

### Popular Downloads

|                                   |                 |
|-----------------------------------|-----------------|
| Data Sheet, Technical Information | 2CDC131025D0201 |
|-----------------------------------|-----------------|

|                                   |   |
|-----------------------------------|---|
| Instructions and Manuals          | 2CDC131011M6802                                       |
| Instructions and Manuals (Part 2) | 2CDC131060M0202                                       |
| Time-Current Characteristic Curve | 1SAM200505F0011                                       |
| I <sup>2</sup> t Characteristic   | 1SAM200507F0001<br>1SAM200507F0002<br>1SAM200507F0003 |
| Cut-off Current Characteristic    | 1SAM200508F0001<br>1SAM200508F0002<br>1SAM200508F0003 |
| Dimension Diagram                 | 1SAM200422F0001                                       |

## Dimensions

|                            |          |
|----------------------------|----------|
| Product Net Width          | 45 mm    |
| Product Net Height         | 90 mm    |
| Product Net Depth / Length | 85.6 mm  |
| Product Net Weight         | 0.265 kg |

## Technical

|   |   |
|---|---|
| Rated Service Short-Circuit Breaking Capacity (I <sub>cs</sub> )    | (230 V AC) 16 kA<br>(400 V AC) 16 kA<br>(440 V AC) 6 kA<br>(500 V AC) 4 kA<br>(690 V AC) 2 kA   |
| Rated Ultimate Short-Circuit Breaking Capacity (I <sub>cu</sub> )   | (230 V AC) 16 kA<br>(400 V AC) 16 kA<br>(440 V AC) 15 kA<br>(500 V AC) 10 kA<br>(690 V AC) 3 kA |
| Rated Instantaneous Short-Circuit Current Setting (I <sub>i</sub> ) | 240 A   |
| Setting Range   | 10 ... 16 A   |
| Rated Operational Power AC-3 (P <sub>e</sub> )                      | (400 V) Three Phase 7.5 kW  |
| Rated Operational Voltage   | Main Circuit 690 V AC   |
| Rated Operational Current (I <sub>e</sub> )                         | 16 A  |
| Rated Operational Current AC-3 (I <sub>e</sub> )                    | 16 A  |
| Rated Frequency (f)   | Main Circuit 50 Hz<br>Main Circuit 60 Hz  |
| Rated Impulse Withstand Voltage (U <sub>imp</sub> )                 | Main Circuit 6 kV   |
| Rated Insulation Voltage (U <sub>i</sub> )                          | 690 V   |
| Power Loss  | at Rated Operating Conditions per Pole 1.1 ... 2.8 W  |
| Number of Poles   | 3   |
| Conventional Free-air Thermal Current (I <sub>th</sub> )            | Main Circuit 16 A   |
| Degree of Protection  | Housing IP20<br>Main Circuit Terminals IP10   |
| Pollution Degree  | 3   |
| Electrical Durability   | 100000 cycle  |
| Mechanical Durability   | 100000 cycle  |

|                                     |   |
|-------------------------------------|---|
| Terminal Type                       | Screw Terminals   |
| Connecting Capacity<br>Main Circuit | Flexible with Ferrule 1/2x 0.75 ... 2.5 mm <sup>2</sup><br>Flexible with Insulated Ferrule 1/2x 0.75 ... 2.5 mm <sup>2</sup><br>Flexible 1/2x 0.75 ... 2.5 mm <sup>2</sup><br>Rigid 1/2x 1 ... 4 mm <sup>2</sup>  |
| Tightening Torque                   | Main Circuit 0.8 ... 1.2 N·m  |
| Wire Stripping Length               | Main Circuit 9 mm   |
| Recommended Screw<br>Driver         | Pozidriv 2  |
| Mounting Position                   | Position 1 to 6   |
| Mounting on DIN Rail                | TH35-15 (35 x 15 mm Mounting Rail) acc. to IEC 60715<br>TH35-7.5 (35 x 7.5 mm Mounting Rail) acc. to IEC 60715  |
| Minimum Mounting<br>Distance        | Electrical Conductive Board, Horizontal - Up to 400 V 0 mm<br>Electrical Conductive Board, Horizontal - Up to 690 V 1.5 mm<br>Electrical Conductive Board, Vertical 75 mm<br>Other Device Same Type, Horizontal 0 mm<br>Other Device Same Type, Vertical 150 mm |
| Actuator Type                       | Rotary Handle   |
| Contact Position<br>Indication      | ON / OFF  |
| Standards                           | IEC/EN 60947-1<br>IEC/EN 60947-2<br>IEC/EN 60947-4-1<br>UL 60947-1<br>UL 60947-4-1  |
| Remarks                             | For 2D and 3D data please visit: <a href="https://abb-control-products.partcommunity.com">https://abb-control-products.partcommunity.com</a>  |

## Technical UL/CSA

|  |  |
|--|--|
| Short-Circuit Current<br>Rating (SCCR)     | Any UL Listed Fuses or Circuit-Breakers, Group Installations (480 V AC) 18 kA<br>Any UL Listed Fuses or Circuit-Breakers, Group Installations (600 V AC) 5 kA<br>Any UL Listed Fuses or Circuit-Breakers, Motor Disconnect (480 V AC) 18 kA<br>Any UL Listed Fuses or Circuit-Breakers, Motor Disconnect (600 V AC) 5 kA |
| Maximum Operating<br>Voltage UL/CSA        | Main Circuit 600 V AC  |
| Ampere Rating UL/CSA                       | 16 A   |
| Horsepower Rating<br>UL/CSA                | (200 V AC) Three Phase 3 Hp<br>(208 V AC) Three Phase 3 Hp<br>(220 ... 240 V AC) Three Phase 5 Hp<br>(440 ... 480 V AC) Three Phase 10 Hp<br>(550 ... 600 V AC) Three Phase 10 Hp  |
| Full Load Amps Motor<br>Use                | (200 V AC) Three Phase 11 A<br>(208 V AC) Three Phase 10.6 A<br>(220 ... 240 V AC) Three Phase 15.2 A<br>(440 ... 480 V AC) Three Phase 14 A<br>(550 ... 600 V AC) Three Phase 11 A  |
| Locked Rotor Amps                          | (200 V AC) Three Phase 73.6 A<br>(208 V AC) Three Phase 71 A<br>(220 ... 240 V AC) Three Phase 92 A<br>(440 ... 480 V AC) Three Phase 81 A<br>(550 ... 600 V AC) Three Phase 64.8 A  |
| General Use Rating<br>UL/CSA               | (600 V AC) 16 A  |
| Connecting Capacity<br>Main Circuit UL/CSA | Flexible 1/2x 16-8 AWG<br>Stranded 1/2x 16-8 AWG   |
| Tightening Torque<br>UL/CSA                | Main Circuit 10 in·lb  |

## Environmental

|             |                                   |
|-------------|-----------------------------------|
| Ambient Air | Around the Enclosure 0 ... +40 °C |
|-------------|-----------------------------------|

|  |  |
|--|--|
| Temperature                                    | Operation -25 ... +70 °C<br>Operation Compensated -25 ... +55 °C<br>Storage -50 ... +80 °C |
| Ambient Air Temperature Compensation           | Yes  |
| Maximum Operating Altitude Permissible         | 2000 m   |
| Resistance to Shock acc. to IEC 60068-2-27     | 11 ms Pulse 25g  |
| Resistance to Vibrations acc. to IEC 60068-2-6 | 5g / 3 ... 150 Hz  |
| RoHS Status                                    | Following EU Directive 2011/65/EU  |

## Certificates and Declarations (Document Number)

|                                   |   |
|-----------------------------------|---|
| ABS Certificate                   | 1SAA963000-0104                                       |
| BV Certificate                    | 1SAA963000-0204                                       |
| CB Certificate                    | 1SAA963000-2003                                       |
| CCC Certificate                   | 1SAA963000-3804                                       |
| cUL Certificate                   | cUL_E137861   |
| Cut-off Current Characteristic    | 1SAM200508F0001<br>1SAM200508F0002<br>1SAM200508F0003 |
| Declaration of Conformity - CE    | 1SAD938521-0060                                       |
| DNV Certificate                   | 1SAA963000-0303                                       |
| DNV GL Certificate                | 1SAA963000-0303                                       |
| EAC Certificate                   | 1SAA963000-2701                                       |
| Environmental Information         | 1SAA963001-2401                                       |
| GL Certificate                    | 1SAA963000-0402                                       |
| GOST Certificate                  | 1SAA963001-2702                                       |
| I <sup>t</sup> Characteristic     | 1SAM200507F0001<br>1SAM200507F0002<br>1SAM200507F0003 |
| Instructions and Manuals          | 2CDC131011M6802                                       |
| Instructions and Manuals (Part 2) | 2CDC131060M0202                                       |
| KC Certificate                    | 1SAA963000-1501                                       |
| LR Certificate                    | 1SAA963000-0505                                       |
| RMRS Certificate                  | 1SAA918000-0704                                       |
| RoHS Information                  | 1SAD938517-0060                                       |
| Time-Current Characteristic Curve | 1SAM200505F0011                                       |
| UL Certificate                    | UL E137861  |

## Container Information

|                                |                 |
|--------------------------------|-----------------|
| Package Level 1 Units          | box 1 piece     |
| Package Level 1 Width          | 92 mm           |
| Package Level 1 Depth / Length | 95 mm           |
| Package Level 1 Height         | 50 mm           |
| Package Level 1 Gross Weight   | 0.28 kg         |
| Package Level 1 EAN            | 4013614320347   |
| Package Level 2 Units          | carton 40 piece |
| Package Level 2 Width          | 280 mm          |
| Package Level 2 Depth /        | 395 mm          |

|                              |               |
|------------------------------|---------------|
| Length                       |               |
| Package Level 2 Height       | 210 mm        |
| Package Level 2 Gross Weight | 11.586 kg     |
| Package Level 2 EAN          | 4013614408717 |

## Classifications

|                                    |   |
|------------------------------------|---|
| Object Classification Code         | F   |
| ETIM 4                             | EC000074 - Motor protective circuit-breaker             |
| ETIM 5                             | EC000074 - Motor protective circuit-breaker             |
| ETIM 6                             | EC000074 - Motor protection circuit-breaker             |
| ETIM 7                             | EC000074 - Motor protection circuit-breaker             |
| eClass                             | 7.0 27370401  |
| UNSPSC                             | 39121521  |
| IDEA Granular Category Code (IGCC) | 4845 >> 3 Pole Motor Circuit Protector Circuit Breakers |
| E-Number (Sweden)                  | 3111950   |

## Accessories

| Identifier      | Description                  | Type     | Quantity | Unit Of Measure |
|-----------------|------------------------------|----------|----------|-----------------|
| 1SAM101923R0002 | MSMN Driver                  | MSMN     | 1        | piece           |
| 1SAM101923R0012 | MSMNO Driver                 | MSMNO    | 1        | piece           |
| 1SAM101924R0003 | MSEX-32 Driver Shaft         | MSEX-32  | 1        | piece           |
| 1SAM101924R0013 | MSEX-30 Driver Shaft         | MSEX-30  | 1        | piece           |
| 1SAM201901R1001 | HKF1-11 Auxiliary Contact    | HKF1-11  | 1        | piece           |
| 1SAM201901R1002 | HKF1-20 Auxiliary Contact    | HKF1-20  | 1        | piece           |
| 1SAM201901R1003 | HKF1-10 Auxiliary Contact    | HKF1-10  | 1        | piece           |
| 1SAM201901R1004 | HKF1-01 Auxiliary Contact    | HKF1-01  | 1        | piece           |
| 1SAM201901R1201 | HKF1-11K Auxiliary Contact   | HKF1-11K | 1        | piece           |
| 1SAM201901R1202 | HKF1-20K Auxiliary Contact   | HKF1-20K | 1        | piece           |
| 1SAM201902R1001 | HK1-11 Auxiliary Contact     | HK1-11   | 1        | piece           |
| 1SAM201902R1002 | HK1-20 Auxiliary Contact     | HK1-20   | 1        | piece           |
| 1SAM201902R1003 | HK1-02 Auxiliary Contact     | HK1-02   | 1        | piece           |
| 1SAM201902R1004 | HK1-20L Auxiliary Contact    | HK1-20L  | 1        | piece           |
| 1SAM201902R1201 | HK1-11K Auxiliary Contact    | HK1-11K  | 1        | piece           |
| 1SAM201902R1202 | HK1-20K Auxiliary Contact    | HK1-20K  | 1        | piece           |
| 1SAM201902R1203 | HK1-02K Auxiliary Contact    | HK1-02K  | 1        | piece           |
| 1SAM201902R1204 | HK1-20LK Auxiliary Contact   | HK1-20LK | 1        | piece           |
| 1SAM201903R1001 | SK1-11 Signal Contact        | SK1-11   | 1        | piece           |
| 1SAM201903R1002 | SK1-20 Signal Contact        | SK1-20   | 1        | piece           |
| 1SAM201903R1003 | SK1-02 Signal Contact        | SK1-02   | 1        | piece           |
| 1SAM201903R1201 | SK1-11K Signal Contact       | SK1-11K  | 1        | piece           |
| 1SAM201903R1202 | SK1-20K Signal Contact       | SK1-20K  | 1        | piece           |
| 1SAM201903R1203 | SK1-02K Signal Contact       | SK1-02K  | 1        | piece           |
| 1SAM201904R1001 | UA1-24 Undervoltage Release  | UA1-24   | 1        | piece           |
| 1SAM201904R1002 | UA1-48 Undervoltage Release  | UA1-48   | 1        | piece           |
| 1SAM201904R1003 | UA1-60 Undervoltage Release  | UA1-60   | 1        | piece           |
| 1SAM201904R1004 | UA1-110 Undervoltage Release | UA1-110  | 1        | piece           |
| 1SAM201904R1005 | UA1-230 Undervoltage Release | UA1-230  | 1        | piece           |
| 1SAM201904R1006 | UA1-400 Undervoltage Release | UA1-400  | 1        | piece           |
| 1SAM201904R1007 | UA1-415 Undervoltage Release | UA1-415  | 1        | piece           |
| 1SAM201904R1008 | UA1-208 Undervoltage Release | UA1-208  | 1        | piece           |
| 1SAM201904R1009 | UA1-575 Undervoltage Release | UA1-575  | 1        | piece           |

|                 |   |             |   |       |
|-----------------|---|-------------|---|-------|
| 1SAM201904R1010 | UA1-20 Undervoltage Release               | UA1-20      | 1 | piece |
| 1SAM201906R1102 | PS1-2-0-65 Busbar                         | PS1-2-0-65  | 1 | piece |
| 1SAM201906R1103 | PS1-3-0-65 Busbar                         | PS1-3-0-65  | 1 | piece |
| 1SAM201906R1104 | PS1-4-0-65 Busbar                         | PS1-4-0-65  | 1 | piece |
| 1SAM201906R1105 | PS1-5-0-65 Busbar                         | PS1-5-0-65  | 1 | piece |
| 1SAM201906R1112 | PS1-2-1-65 Busbar                         | PS1-2-1-65  | 1 | piece |
| 1SAM201906R1113 | PS1-3-1-65 Busbar                         | PS1-3-1-65  | 1 | piece |
| 1SAM201906R1114 | PS1-4-1-65 Busbar                         | PS1-4-1-65  | 1 | piece |
| 1SAM201906R1115 | PS1-5-1-65 Busbar                         | PS1-5-1-65  | 1 | piece |
| 1SAM201906R1122 | PS1-2-2-65 Busbar                         | PS1-2-2-65  | 1 | piece |
| 1SAM201906R1123 | PS1-3-2-65 Busbar                         | PS1-3-2-65  | 1 | piece |
| 1SAM201906R1124 | PS1-4-2-65 Busbar                         | PS1-4-2-65  | 1 | piece |
| 1SAM201906R1125 | PS1-5-2-65 Busbar                         | PS1-5-2-65  | 1 | piece |
| 1SAM201907R1101 | S1-M1-25 Power Infeed Block               | S1-M1-25    | 1 | piece |
| 1SAM201907R1102 | S1-M2-25 Power Infeed Block               | S1-M2-25    | 1 | piece |
| 1SAM201907R1103 | S1-M3-25 Power Infeed Block               | S1-M3-25    | 1 | piece |
| 1SAM201908R1001 | BS1-3 Protection Cover                    | BS1-3       | 1 | piece |
| 1SAM201909R1001 | FS116 Screw Fixing Kit                    | FS116       | 1 | piece |
| 1SAM201909R1021 | MSAH1 Shaft Supporter                     | MSAH1       | 1 | piece |
| 1SAM201910R1001 | AA1-24 Shunt Trip                         | AA1-24      | 1 | piece |
| 1SAM201910R1002 | AA1-110 Shunt Trip                        | AA1-110     | 1 | piece |
| 1SAM201910R1003 | AA1-230 Shunt Trip                        | AA1-230     | 1 | piece |
| 1SAM201910R1004 | AA1-400 Shunt Trip                        | AA1-400     | 1 | piece |
| 1SAM201911R1010 | IB132-G Enclosure                         | IB132-G     | 1 | piece |
| 1SAM201911R1011 | IB132-Y Enclosure                         | IB132-Y     | 1 | piece |
| 1SAM201911R1012 | IB132-F Enclosure                         | IB132-F     | 1 | piece |
| 1SAM201912R1010 | DMS132-G Door Mounting Kit                | DMS132-G    | 1 | piece |
| 1SAM201912R1011 | DMS132-Y Door Mounting Kit                | DMS132-Y    | 1 | piece |
| 1SAM201913R1103 | S1-M3-35 Power Infeed Block               | S1-M3-35    | 1 | piece |
| 1SAM201914R1001 | PB1-1-32 Connecting Link                  | PB1-1-32    | 1 | piece |
| 1SAM201914R1002 | S1-PB1-25 Power Infeed Block              | S1-PB1-25   | 1 | piece |
| 1SAM201916R1103 | PS1-3-0-100 Busbar                        | PS1-3-0-100 | 1 | piece |
| 1SAM201916R1104 | PS1-4-0-100 Busbar                        | PS1-4-0-100 | 1 | piece |
| 1SAM201916R1105 | PS1-5-0-100 Busbar                        | PS1-5-0-100 | 1 | piece |
| 1SAM201916R1113 | PS1-3-1-100 Busbar                        | PS1-3-1-100 | 1 | piece |
| 1SAM201916R1114 | PS1-4-1-100 Busbar                        | PS1-4-1-100 | 1 | piece |
| 1SAM201916R1115 | PS1-5-1-100 Busbar                        | PS1-5-1-100 | 1 | piece |
| 1SAM201916R1123 | PS1-3-2-100 Busbar                        | PS1-3-2-100 | 1 | piece |
| 1SAM201920R1000 | MSH-AR Shaft Alignment Ring               | MSH-AR      | 1 | piece |
| 1SAM201920R1001 | MSHD-LB Handles                           | MSHD-LB     | 1 | piece |
| 1SAM201920R1002 | MSHD-LY Handles                           | MSHD-LY     | 1 | piece |
| 1SCA101647R1001 | OXS6X85 SHAFT                             | OXS6X85     | 1 | piece |
| 1SCA101655R1001 | OXS6X130 SHAFT                            | OXS6X130    | 1 | piece |
| 1SCA101659R1001 | OXS6X180 SHAFT                            | OXS6X180    | 1 | piece |
| 1SCA108043R1001 | OXS6X105 SHAFT                            | OXS6X105    | 1 | piece |
| GJF1101903R0001 | SA1 - Terminals and Installation Material | SA1         | 1 | piece |
| GJF1101903R0002 | SA2 - Terminals and Installation Material | SA2         | 1 | piece |
| GJF1101903R0003 | SA3 - Terminals and Installation Material | SA3         | 1 | piece |

### Where Used (as a spare part for "Products")

| Identifier | Description              | Quantity | Unit Of Measure |
|------------|--------------------------|----------|-----------------|
| ACS 2000   | No Description Available | 1        | piece           |
| ACS 1000   | No Description Available | 1        | piece           |

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**Product specific part data**

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| <b>Product</b> | <b>Category</b> | <b>Drive Part Category</b>   |
|----------------|-----------------|------------------------------|
| ACS 2000       | ACS2000         | Switches, Relays, Contactors |
| ACS 1000       | ACS1000         | Switches, Relays, Contactors |

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**Categories**

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Low Voltage Products and Systems → Circuit Breakers → Manual Motor Starters

Low Voltage Products and Systems → Control Products → Manual Motor Starters → Manual Motor Starters

Drives → Medium voltage AC drives → Industrial drives → ACS1000

Drives → Medium voltage AC drives → Industrial drives → ACS2000

