

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

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

## General Information

|                               |   |
|-------------------------------|---|
| <b>Extended Product Type:</b> | MS165-32  |
| <b>Product ID:</b>            | 1SAM451000R1014   |
| <b>EAN:</b>                   | 4013614486081   |
| <b>Catalog Description:</b>   | MS165-32 Manual Motor Starter   |
| <b>Long Description:</b>      | MS165 is a compact and powerful range for motor protection up to 30 kW (400 V) / 60 A in width of 55 mm. They offer a reliable protection for motors in the event of overload or phase failure. The devices have trip class 10. This type has also a clear and reliable indication of fault in a separate window in the event of short-circuit tripping. 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. The handle is lockable to protect against unauthorized changes. Auxiliary contacts, signaling contacts, undervoltage releases, shunt trips, power in-feed blocks are available as accessory. These are suitable throughout the MS116/MS132/MS165 range. |

## Ordering

|                                |          |
|--------------------------------|----------|
| <b>Minimum Order Quantity:</b> | 1 piece  |
| <b>Customs Tariff Number:</b>  | 85362010 |

## Popular Downloads

|  |                                    |
|--|------------------------------------|
| <b>Data Sheet, Technical Information:</b>          | 2CDC131083D0201                    |
| <b>Data Sheet, Technical Information (Part 2):</b> | 1SAM400506F0001<br>1SAM400507F0001 |
| <b>Data Sheet, Technical Information (Part 3):</b> | 1SAM400505F0004                    |
| <b>Instructions and Manuals:</b>                   | 2CDC131081M6801                    |
| <b>Instructions and Manuals (Part 2):</b>          | 2CDC131087M6801                    |
| <b>Dimension Diagram:</b>                          | 1SAM400401F0001                    |

## Dimensions

|                            |           |
|----------------------------|-----------|
| <b>Product Net Width:</b>  | 55 mm     |
| <b>Product Net Height:</b> | 142.65 mm |
| <b>Product Net Depth:</b>  | 122.1 mm  |
| <b>Product Net Weight:</b> | 0.97 kg   |

## Technical

|  |   |
|--|---|
| <b>Rated Service Short-Circuit Breaking Capacity (<math>I_{cs}</math>):</b>  | (230 V AC) 100 kA<br>(250 V DC) 3 Poles in Series 100 kA<br>(400 V AC) 100 kA<br>(440 V AC) 50 kA<br>(500 V AC) 30 kA<br>(690 V AC) 10 kA |
| <b>Rated Ultimate Short-Circuit Breaking Capacity (<math>I_{cu}</math>):</b> | (230 V AC) 100 kA<br>(250 V DC) 100 kA<br>(400 V AC) 100 kA<br>(440 V AC) 50 kA<br>(500 V AC) 30 kA<br>(690 V AC) 10 kA                   |
| <b>Rated Instantaneous Short-Circuit Current Setting (<math>I_i</math>):</b> | 480 A   |
| <b>Setting Range:</b>  | 23 ... 32 A   |
| <b>Rated Operational Power AC-3 (<math>P_e</math>):</b>                      | (400 V) Three Phase 15 kW   |
| <b>Rated Operational Voltage:</b>  | Main Circuit 690 V AC<br>Main Circuit 250 V DC  |
| <b>Rated Operational Current (<math>I_e</math>):</b>                         | 32 A  |
| <b>Rated Operational Current AC-3 (<math>I_e</math>):</b>                    | 32 A  |
| <b>Rated Operational Current DC-5 (<math>I_e</math>):</b>                    | 32 A  |
| <b>Rated Frequency (f):</b>  | Main Circuit 50 Hz<br>Main Circuit 60 Hz  |
| <b>Rated Impulse Withstand Voltage (<math>U_{imp}</math>):</b>               | Main Circuit 8 kV   |
| <b>Rated Insulation Voltage (<math>U_i</math>):</b>                          | 1000 V  |
| <b>Power Loss:</b>   | at Rated Operating Conditions per Pole 2.27 ... 4.40 W  |
| <b>Number of Poles:</b>  | 3   |
| <b>Conventional Free-air Thermal Current (<math>I_{th}</math>):</b>          | Main Circuit 32 A   |
| <b>Degree of Protection:</b>   | Housing IP20<br>Main Circuit Terminals IP10   |
| <b>Pollution Degree:</b>   | 3   |
| <b>Electrical Durability:</b>  | 25000 cycle   |
| <b>Mechanical Durability:</b>  | 50000 cycle   |
| <b>Terminal Type:</b>  | Screw Terminals   |

|  |  |
|--|--|
| <b>Connecting Capacity Main Circuit:</b> | Flexible with Ferrule 1/2x 1 ... 35 mm <sup>2</sup><br>Flexible with Insulated Ferrule 1/2x 1 ... 35 mm <sup>2</sup><br>Flexible 1/2x 1 ... 35 mm <sup>2</sup><br>Rigid 1/2x 1 ... 4 mm <sup>2</sup><br>Solid 1/2x 1 ... 4 mm <sup>2</sup><br>Stranded 1/2x 1 ... 50 mm <sup>2</sup> |
| <b>Tightening Torque:</b>                | Main Circuit 4 N·m   |
| <b>Wire Stripping Length:</b>            | Main Circuit 16 mm   |
| <b>Recommended Screw Driver:</b>         | Pozidriv 2   |
| <b>Mounting Position:</b>                | Position 1 to 6  |
| <b>Actuator Type:</b>                    | Rotary Handle  |
| <b>Contact Position Indication:</b>      | ON / OFF / TRIP  |
| <b>Mounting on DIN Rail:</b>             | 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   |
| <b>Standards:</b>                        | IEC/EN 60947-1<br>IEC/EN 60947-2<br>IEC/EN 60947-4-1<br>UL 60947-4-1<br>CSA 22.2 No. 14  |

## Environmental

|  |  |
|--|--|
| <b>Ambient Air Temperature:</b>                        | Operation -25 ... +60 °C<br>Operation Compensated -25 ... +60 °C<br>Storage -50 ... +80 °C |
| <b>Ambient Air Temperature Compensation:</b>           | Yes  |
| <b>Maximum Operating Altitude Permissible:</b>         | 2000 m   |
| <b>Resistance to Shock acc. to IEC 60068-2-27:</b>     | 11 ms Pulse 25g  |
| <b>Resistance to Vibrations acc. to IEC 60068-2-6:</b> | 5g / 3 ... 150 Hz  |
| <b>RoHS Status:</b>                                    | Following EU Directive 2011/65/EU  |

## Technical UL/CSA

|  |   |
|--|---|
| <b>Maximum Operating Voltage UL/CSA:</b> | Main Circuit 600 V AC   |
| <b>Horsepower Rating UL/CSA:</b>         | (200 V AC) Three Phase 7.5 Hp<br>(208 V AC) Three Phase 10 Hp<br>(220 ... 240 V AC) Three Phase 10 Hp<br>(440 ... 480 V AC) Three Phase 20 Hp<br>(550 ... 600 V AC) Three Phase 30 Hp |
| <b>Ampere Rating UL/CSA:</b>             | 32 A  |
| <b>General Use Rating UL/CSA:</b>        | (600 V AC) 32 A   |

|   |  |
|---|--|
| <b>Connecting Capacity Main Circuit<br/>UL/CSA:</b> | Flexible 1/2x 16-0 AWG<br>Stranded 1/2x 16-0 AWG |
|---|--|

|                                  |                       |
|----------------------------------|-----------------------|
| <b>Tightening Torque UL/CSA:</b> | Main Circuit 35 in·lb |
|----------------------------------|-----------------------|

## Certificates and Declarations (Document Number)

|                         |                 |
|-------------------------|-----------------|
| <b>ABS Certificate:</b> | 1SAA963002-0101 |
|-------------------------|-----------------|

|                          |                 |
|--------------------------|-----------------|
| <b>ATEX Certificate:</b> | 1SAA918001-3901 |
|--------------------------|-----------------|

|                        |                 |
|------------------------|-----------------|
| <b>BV Certificate:</b> | 1SAA963002-0201 |
|------------------------|-----------------|

|                        |                 |
|------------------------|-----------------|
| <b>CB Certificate:</b> | 1SAA918002-2002 |
|------------------------|-----------------|

|                         |                 |
|-------------------------|-----------------|
| <b>CCC Certificate:</b> | 1SAA918004-3801 |
|-------------------------|-----------------|

|                         |             |
|-------------------------|-------------|
| <b>cUL Certificate:</b> | cUL_E345003 |
|-------------------------|-------------|

|  |                 |
|--|-----------------|
| <b>Declaration of Conformity - CE:</b> | 1SAD938501-0198 |
|--|-----------------|

|                            |                 |
|----------------------------|-----------------|
| <b>DNV GL Certificate:</b> | 1SAA963002-0301 |
|----------------------------|-----------------|

|                         |                 |
|-------------------------|-----------------|
| <b>EAC Certificate:</b> | 1SAA963002-2701 |
|-------------------------|-----------------|

|                                  |                 |
|----------------------------------|-----------------|
| <b>Instructions and Manuals:</b> | 2CDC131081M6801 |
|----------------------------------|-----------------|

|                        |                 |
|------------------------|-----------------|
| <b>KC Certificate:</b> | 1SAA963001-1501 |
|------------------------|-----------------|

|                        |                 |
|------------------------|-----------------|
| <b>LR Certificate:</b> | 1SAA918001-0501 |
|------------------------|-----------------|

|                          |                 |
|--------------------------|-----------------|
| <b>RMRS Certificate:</b> | 1SAA918000-0704 |
|--------------------------|-----------------|

|                          |                 |
|--------------------------|-----------------|
| <b>RoHS Information:</b> | 1SAD938501-0198 |
|--------------------------|-----------------|

|                        |   |
|------------------------|---|
| <b>UL Certificate:</b> | cUL_E137861<br>UL_E137861<br>cUL_E345003<br>UL_345003 |
|------------------------|---|

## Container Information

|                               |         |
|-------------------------------|---------|
| <b>Package Level 1 Units:</b> | 1 piece |
|-------------------------------|---------|

|                               |       |
|-------------------------------|-------|
| <b>Package Level 1 Width:</b> | 78 mm |
|-------------------------------|-------|

|                                |        |
|--------------------------------|--------|
| <b>Package Level 1 Length:</b> | 155 mm |
|--------------------------------|--------|

|                                |        |
|--------------------------------|--------|
| <b>Package Level 1 Height:</b> | 155 mm |
|--------------------------------|--------|

|                                      |        |
|--------------------------------------|--------|
| <b>Package Level 1 Gross Weight:</b> | 1.1 kg |
|--------------------------------------|--------|

|                             |               |
|-----------------------------|---------------|
| <b>Package Level 1 EAN:</b> | 4013614486081 |
|-----------------------------|---------------|

|                               |          |
|-------------------------------|----------|
| <b>Package Level 2 Units:</b> | 12 piece |
|-------------------------------|----------|

|                               |        |
|-------------------------------|--------|
| <b>Package Level 2 Width:</b> | 330 mm |
|-------------------------------|--------|

|                                |        |
|--------------------------------|--------|
| <b>Package Level 2 Length:</b> | 400 mm |
|--------------------------------|--------|

|                                |        |
|--------------------------------|--------|
| <b>Package Level 2 Height:</b> | 320 mm |
|--------------------------------|--------|

|                                      |       |
|--------------------------------------|-------|
| <b>Package Level 2 Gross Weight:</b> | 13 kg |
|--------------------------------------|-------|

|                             |               |
|-----------------------------|---------------|
| <b>Package Level 2 EAN:</b> | 4013614503948 |
|-----------------------------|---------------|

## Classifications

|                                    |   |
|------------------------------------|---|
| <b>Object Classification Code:</b> | F |
|------------------------------------|---|

|                  |   |
|------------------|---|
| <b>E-number:</b> | 3110054                                     |
| <b>ETIM 5:</b>   | EC000074 - Motor protective circuit-breaker |
| <b>ETIM 6:</b>   | EC000074 - Motor protection circuit-breaker |
| <b>ETIM 7:</b>   | EC000074 - Motor protection circuit-breaker |
| <b>eClass:</b>   | 7.0 27370401                                |
| <b>UNSPSC:</b>   | 39121521                                    |

## Accessories

| <b>Identifier</b> | <b>Description</b>           | <b>Type</b> | <b>Qty</b> | <b>Unit Of Measure</b> |
|-------------------|------------------------------|-------------|------------|------------------------|
| 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                  |
| 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                  |
| 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                  |
| 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                  |
| 1SAM201910R1001   | AA1-24 Shunt Trip            | AA1-24      | 1          | piece                  |

| <b>Identifier</b> | <b>Description</b>                     | <b>Type</b> | <b>Qty</b> | <b>Unit Of Measure</b> |
|-------------------|--|-------------|------------|------------------------|
| 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                  |
| 1SAM301901R1001   | CK1-11 Short Circuit Signaling Contact | CK1-11      | 1          | piece                  |
| 1SAM301901R1002   | CK1-20 Short Circuit Signaling Contact | CK1-20      | 1          | piece                  |
| 1SAM301901R1003   | CK1-02 Short Circuit Signaling Contact | CK1-02      | 1          | piece                  |
| 1SAM401920R1002   | PS2-2-0-125 Busbar                     | PS2-2-0-125 | 1          | piece                  |
| 1SAM401920R1003   | PS2-3-0-125 Busbar                     | PS2-3-0-125 | 1          | piece                  |
| 1SAM401920R1004   | PS2-4-0-125 Busbar                     | PS2-4-0-125 | 1          | piece                  |
| 1SAM401920R1005   | PS2-5-0-125 Busbar                     | PS2-5-0-125 | 1          | piece                  |
| 1SAM401920R1012   | PS2-2-1-125 Busbar                     | PS2-2-1-125 | 1          | piece                  |
| 1SAM401920R1013   | PS2-3-1-125 Busbar                     | PS2-3-1-125 | 1          | piece                  |
| 1SAM401920R1014   | PS2-4-1-125 Busbar                     | PS2-4-1-125 | 1          | piece                  |
| 1SAM401920R1015   | PS2-5-1-125 Busbar                     | PS2-5-1-125 | 1          | piece                  |
| 1SAM401920R1022   | PS2-2-2-125 Busbar                     | PS2-2-2-125 | 1          | piece                  |
| 1SAM401920R1023   | PS2-3-2-125 Busbar                     | PS2-3-2-125 | 1          | piece                  |
| 1SAM401920R1024   | PS2-4-2-125 Busbar                     | PS2-4-2-125 | 1          | piece                  |
| 1SAM401920R1025   | PS2-5-2-125 Busbar                     | PS2-5-2-125 | 1          | piece                  |
| 1SAM401921R1001   | BS2-3 Protection Cover                 | BS2-3       | 1          | piece                  |
| 1SAM401922R1001   | KA165 Terminal Shroud                  | KA165       | 1          | piece                  |

