

## PRODUCT-DETAILS

# MS165-42

## MS165-42 Manual Motor Starter



### General Information

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Extended Product Type | MS165-42                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Product ID            | 1SAM451000R1015                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| EAN                   | 4013614486098                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Catalog Description   | MS165-42 Manual Motor Starter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Long Description      | <p>MS165 is a compact and powerful range for motor protection up to 45 kW (400 V) / 80 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.</p> <p>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 (also known as motor protection circuit breaker or manual motor protector) 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.</p> |

### Ordering

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

### Popular Downloads

|                                   |                 |
|-----------------------------------|-----------------|
| Data Sheet, Technical Information | 2CDC131083D0201 |
|-----------------------------------|-----------------|

|                                   |                 |
|-----------------------------------|-----------------|
| Instructions and Manuals          | 2CDC131081M6801 |
| Instructions and Manuals (Part 2) | 2CDC131060M0202 |
| Time-Current Characteristic Curve | 1SAM400505F0005 |
| I <sup>2</sup> t Characteristic   | 1SAM400506F0001 |
| Cut-off Current Characteristic    | 1SAM400507F0001 |
| Dimension Diagram                 | 1SAM400401F0001 |

## Dimensions

|                            |           |
|----------------------------|-----------|
| Product Net Width          | 55 mm     |
| Product Net Height         | 142.65 mm |
| Product Net Depth / Length | 122.1 mm  |
| Product Net Weight         | 0.97 kg   |

## Technical

|                                                                     |                                                                                                                                         |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Rated Service Short-Circuit Breaking Capacity (I <sub>cs</sub> )    | (230 V AC) 50 kA<br>(250 V DC) 3 Poles in Series 100 kA<br>(400 V AC) 50 kA<br>(440 V AC) 50 kA<br>(500 V AC) 30 kA<br>(690 V AC) 10 kA |
| Rated Ultimate Short-Circuit Breaking Capacity (I <sub>cu</sub> )   | (230 V AC) 50 kA<br>(250 V DC) 100 kA<br>(400 V AC) 50 kA<br>(440 V AC) 50 kA<br>(500 V AC) 30 kA<br>(690 V AC) 10 kA                   |
| Rated Instantaneous Short-Circuit Current Setting (I <sub>i</sub> ) | 630 A                                                                                                                                   |
| Setting Range                                                       | 30 ... 42 A                                                                                                                             |
| Rated Operational Power AC-3 (P <sub>e</sub> )                      | (400 V) Three Phase 22 kW                                                                                                               |
| Rated Operational Voltage                                           | Main Circuit 690 V AC<br>Main Circuit 250 V DC                                                                                          |
| Rated Operational Current (I <sub>e</sub> )                         | 42 A                                                                                                                                    |
| Rated Operational Current AC-3 (I <sub>e</sub> )                    | 42 A                                                                                                                                    |
| Rated Operational Current DC-5 (I <sub>e</sub> )                    | 42 A                                                                                                                                    |
| Rated Frequency (f)                                                 | Main Circuit 50 Hz<br>Main Circuit 60 Hz                                                                                                |
| Rated Impulse Withstand Voltage (U <sub>imp</sub> )                 | Main Circuit 8 kV                                                                                                                       |
| Rated Insulation Voltage (U <sub>i</sub> )                          | 1000 V                                                                                                                                  |
| Power Loss                                                          | at Rated Operating Conditions per Pole 2.79 ... 5.47 W                                                                                  |
| Number of Poles                                                     | 3                                                                                                                                       |
| Conventional Free-air Thermal Current (I <sub>th</sub> )            | Main Circuit 42 A                                                                                                                       |
| Degree of Protection                                                | Housing IP20<br>Main Circuit Terminals IP10                                                                                             |
| Pollution Degree                                                    | 3                                                                                                                                       |
| Electrical Durability                                               | 25000 cycle                                                                                                                             |
| Mechanical Durability                                               | 50000 cycle                                                                                                                             |

|                             |                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Terminal Type               | Screw Terminals                                                                                                                                                                                                                                                                                                                  |
| Connecting Capacity         | Flexible with Ferrule 1/2x 1 ... 35 mm <sup>2</sup>                                                                                                                                                                                                                                                                              |
| Main Circuit                | Flexible with Insulated Ferrule 1/2x 1 ... 35 mm <sup>2</sup>                                                                                                                                                                                                                                                                    |
|                             | Flexible 1/2x 1 ... 35 mm <sup>2</sup>                                                                                                                                                                                                                                                                                           |
|                             | Rigid 1/2x 1 ... 4 mm <sup>2</sup>                                                                                                                                                                                                                                                                                               |
|                             | Solid 1/2x 1 ... 4 mm <sup>2</sup>                                                                                                                                                                                                                                                                                               |
|                             | Stranded 1/2x 1 ... 50 mm <sup>2</sup>                                                                                                                                                                                                                                                                                           |
| Tightening Torque           | Main Circuit 4 N·m                                                                                                                                                                                                                                                                                                               |
| Wire Stripping Length       | Main Circuit 16 mm                                                                                                                                                                                                                                                                                                               |
| Recommended Screw 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 Distance   | Electrical Conductive Board, Horizontal - Up to 1000 V 1.5 mm<br>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 Indication | ON / OFF / TRIP                                                                                                                                                                                                                                                                                                                  |
| Standards                   | CSA 22.2 No. 14<br>IEC/EN 60947-1<br>IEC/EN 60947-2<br>IEC/EN 60947-4-1<br>UL 60947-4-1                                                                                                                                                                                                                                          |

## Technical UL/CSA

|                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Short-Circuit Current Rating (SCCR) | Manual Self-Protected Combination Controllers (Type E), (480Y / 277 V AC) 65 kA<br>Manual Self-Protected Combination Controllers (Type E), (600Y / 347 V AC) 30 kA<br>Any UL Listed Fuses or Circuit-Breakers, Group Installations (480 V AC) 65 kA<br>Any UL Listed Fuses or Circuit-Breakers, Group Installations (600 V AC) 30 kA<br>Any UL Listed Fuses or Circuit-Breakers, Motor Disconnect (480 V AC) 65 kA<br>Any UL Listed Fuses or Circuit-Breakers, Motor Disconnect (600 V AC) 30 kA<br>Any UL Listed Fuses or Circuit-Breakers, Tap Conductor Protection in Group Installations (480Y / 277 V AC) 65 kA<br>Any UL Listed Fuses or Circuit-Breakers, Tap Conductor Protection in Group Installations (600Y / 347 V AC) 30 kA |
| Maximum Operating Voltage UL/CSA    | Main Circuit 600 V AC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Ampere Rating UL/CSA                | 42 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Horsepower Rating UL/CSA            | (200 V AC) Three Phase 10 Hp<br>(208 V AC) Three Phase 10 Hp<br>(220 ... 240 V AC) Three Phase 15 Hp<br>(440 ... 480 V AC) Three Phase 30 Hp<br>(550 ... 600 V AC) Three Phase 40 Hp                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Full Load Amps Motor Use            | (200 V AC) Three Phase 32.2 A<br>(208 V AC) Three Phase 30.8 A<br>(220 ... 240 V AC) Three Phase 42 A<br>(440 ... 480 V AC) Three Phase 40 A<br>(550 ... 600 V AC) Three Phase 41 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Locked Rotor Amps                   | (200 V AC) Three Phase 186.3 A<br>(208 V AC) Three Phase 179 A<br>(220 ... 240 V AC) Three Phase 232 A<br>(440 ... 480 V AC) Three Phase 218 A<br>(550 ... 600 V AC) Three Phase 232 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| General Use Rating UL/CSA           | (600 V AC) 42 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Connecting Capacity                 | Flexible 1/2x 16-0 AWG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

|                             |                        |
|-----------------------------|------------------------|
| Main Circuit UL/CSA         | Stranded 1/2x 16-0 AWG |
| Tightening Torque<br>UL/CSA | Main Circuit 35 in-lb  |

## Environmental

|                                                |                                                                                            |
|------------------------------------------------|--------------------------------------------------------------------------------------------|
| Ambient Air Temperature                        | Operation -25 ... +60 °C<br>Operation Compensated -25 ... +60 °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                   | 1SAA963002-0101            |
| ATEX Certificate                  | 1SAA918001-3901            |
| BV Certificate                    | 1SAA963002-0201            |
| CB Certificate                    | 1SAA918002-2002            |
| CCC Certificate                   | 1SAA918004-3801            |
| cUL Certificate                   | cUL_E345003<br>cUL_E137861 |
| Cut-off Current Characteristic    | 1SAM400507F0001            |
| Declaration of Conformity - CE    | 1SAD938507-0190            |
| DNV GL Certificate                | 1SAA963002-0301            |
| EAC Certificate                   | 1SAA963000-2701            |
| I <sup>2</sup> t Characteristic   | 1SAM400506F0001            |
| Instructions and Manuals          | 2CDC131081M6801            |
| Instructions and Manuals (Part 2) | 2CDC131060M0202            |
| KC Certificate                    | 1SAA963001-1501            |
| LR Certificate                    | 1SAA918001-0501            |
| RMRS Certificate                  | 1SAA918000-0704            |
| RoHS Information                  | 1SAD938505-0190            |
| Time-Current Characteristic Curve | 1SAM400505F0005            |
| UL Certificate                    | UL_E137861<br>UL_345003    |

## Container Information

|                                |               |
|--------------------------------|---------------|
| Package Level 1 Units          | 1 piece       |
| Package Level 1 Width          | 78 mm         |
| Package Level 1 Depth / Length | 155 mm        |
| Package Level 1 Height         | 155 mm        |
| Package Level 1 Gross Weight   | 1.1 kg        |
| Package Level 1 EAN            | 4013614486098 |
| Package Level 2 Units          | 12 piece      |

|                                |               |
|--------------------------------|---------------|
| Package Level 2 Width          | 330 mm        |
| Package Level 2 Depth / Length | 400 mm        |
| Package Level 2 Height         | 320 mm        |
| Package Level 2 Gross Weight   | 13 kg         |
| Package Level 2 EAN            | 4013614503955 |

## Classifications

|                                    |                                                         |
|------------------------------------|---------------------------------------------------------|
| Object Classification Code         | F                                                       |
| 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)                  | 3110055                                                 |

## Accessories

| Identifier      | Description                  | Type     | Quantity | Unit Of Measure |
|-----------------|------------------------------|----------|----------|-----------------|
| 1SAM101923R0002 | MSMN Driver                  | MSMN     | 1        | piece           |
| 1SAM101923R0012 | MSMNO Driver                 | MSMNO    | 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           |

|                 |                                        |             |   |       |
|-----------------|----------------------------------------|-------------|---|-------|
| 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 |
| 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 |
| 1SAM201920R1011 | MSHD-LTB Handles                       | MSHD-LTB    | 1 | piece |
| 1SAM201920R1012 | MSHD-LTY Handles                       | MSHD-LTY    | 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 |
| 1SCA101647R1001 | OXS6X85 SHAFT                          | OXS6X85     | 1 | piece |
| 1SCA101655R1001 | OXS6X130 SHAFT                         | OXS6X130    | 1 | piece |
| 1SCA101659R1001 | OXS6X180 SHAFT                         | OXS6X180    | 1 | piece |
| 1SCA108043R1001 | OXS6X105 SHAFT                         | OXS6X105    | 1 | piece |

## Categories

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

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

