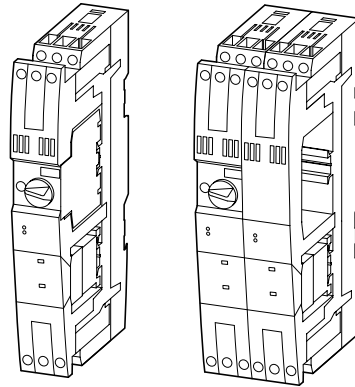
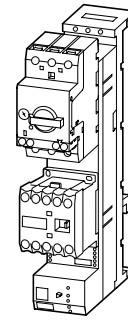


xStart-XS1



KLAS motor starter combination



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| Description    | 16/2  |
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#### System description

xStart-XS1 carries the benefits of the XI/ON concept over to industrial motor starters to ensure flexible, system-wide plant availability. The XI/ON gateway provides openness and independence from the field bus. Installation is quick and easy: the base modules are simply snapped on and slid into place to make the connections. No additional wiring is needed. The convenient power modules are pluggable and simple to service. In addition, the object-oriented properties keep engineering times and costs low. Used as a direct or reversing starter, xStart-XS1 complies with the IEC/EN 60947-4-1 standard.

#### Features

The following versions of xStart-XS1 are currently available:

- Standard
  - DOL starter with or without AGM (trip-indicating auxiliary contact)
  - Reversing starter with/without AGM
  - Unambiguous switch position indication through rotary handle
  - The isolating properties in "0" position are fulfilled.
  - Type-tested motor-starter combinations with AC-3 up to 415 V
  - xStart-XS1 reliably isolates even high short-circuit currents to keep both people and equipment safe.
  - The power modules are fitted directly to the base module and each has one status and diagnostics and one power LED.
  - Power distribution up to 63 A is through three-phase commoning links.
  - Depending on the application, I/O modules can be added before or after xStart.
- Safety version
  - Emergency-Stop according to IEC/EN 954-1, switching category 2
  - Version with interlocked opposing auxiliary contacts
  - Fully prewired unit, no add-on modules required

#### Description

##### DOL starters

- Available with and without AGM
- For unidirectional drives
- For switching and protecting motors from 0.06 kW to 4.0 kW
- Mounting width only 45 mm without AGM and only 90 mm with AGM
- Consisting of a PKZM motor-protective circuit-breaker and a DILEM contactor

##### Reversing starters

- Available with and without AGM
- For bidirectional drives
- For switching and protecting motors from 0.06 kW to 4.0 kW
- Mounting width only 90 mm
- Consisting of a PKZM motor-protective circuit-breaker and two DILEM contactors

##### Notes

The networkable xStart-XS1 motor starter always requires an XN-GW-... gateway and a XN-BR (bus refreshing module) or XN-PF (power feeding module) control voltage supply.



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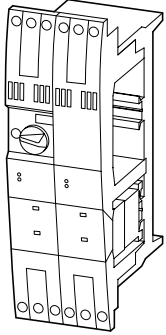
|                                   |                | Motor data                                |  | Setting range             |                           | Type<br>Article no.              | Price<br>See Price List | Std. pack |
|-----------------------------------|----------------|---|--|---------------------------|---------------------------|----------------------------------|-------------------------|-----------|
|                                   |                | Rated power,<br>AC-3 motor load<br>switch | Rated operational<br>current<br>AC-3 400 V | Overload<br>releases      | Short-circuit<br>release  |                                  |                         |           |
|                                   |                | 400 V<br><i>P</i><br>kW                   | <i>I<sub>e</sub></i><br>A                  | <i>I<sub>r</sub></i><br>A | <i>I<sub>m</sub></i><br>A |                                  |                         |           |
|                                   |                |   |  |                           |                           |                                  |                         |           |
| <b>DOL starter, power section</b> |                |   |  |                           |                           |                                  |                         |           |
|                                   | Without<br>AGM | 0.06                                      | 0.21                                       | 0.16 – 0.25               | 3.5                       | <b>XS1-DS0-340-K06</b><br>231250 |                         | 1 off     |
|                                   |                | 0.09                                      | 0.31                                       | 0.25 – 0.4                | 5.6                       | <b>XS1-DS0-340-K09</b><br>231251 |                         |           |
|                                   |                | 0.18                                      | 0.6  | 0.4 – 0.63                | 8.8                       | <b>XS1-DS0-340-K18</b><br>231252 |                         |           |
|                                   |                | 0.25                                      | 0.8  | 0.6 – 1                   | 14                        | <b>XS1-DS0-340-K25</b><br>231254 |                         |           |
|                                   |                | 0.55                                      | 1.5  | 1 – 1.6                   | 22                        | <b>XS1-DS0-340-K55</b><br>231255 |                         |           |
|                                   |                | 0.75                                      | 1.9  | 1.6 – 2.5                 | 35                        | <b>XS1-DS0-340-K75</b><br>231256 |                         |           |
|                                   |                | 1.5                                       | 3.6  | 2.5 – 4                   | 56                        | <b>XS1-DS0-340-1K5</b><br>231257 |                         |           |
|                                   |                | 2.2                                       | 5  | 4 – 6.3                   | 88                        | <b>XS1-DS0-340-2K2</b><br>231258 |                         |           |
|                                   |                | 3   | 6.6  | 6.3 – 10                  | 140                       | <b>XS1-DS0-340-3K0</b><br>265682 |                         |           |
|                                   |                | 4   | 8.5  | 6.3 – 10                  | 140                       | <b>XS1-DS0-340-4K0</b><br>265683 |                         |           |
|                                   | With AGM       | 0.06                                      | 0.21                                       | 0.16 – 0.25               | 3.5                       | <b>XS1-DS0-341-K06</b><br>231520 |                         |           |
|                                   |                | 0.09                                      | 0.32                                       | 0.25 – 0.4                | 5.6                       | <b>XS1-DS0-341-K09</b><br>231521 |                         |           |
|                                   |                | 0.18                                      | 0.6  | 0.4 – 0.63                | 8.8                       | <b>XS1-DS0-341-K18</b><br>231522 |                         |           |
|                                   |                | 25  | 0.8  | 0.6 – 1                   | 14                        | <b>XS1-DS0-341-K25</b><br>231523 |                         |           |
|                                   |                | 0.55                                      | 1.5  | 1 – 1.6                   | 22                        | <b>XS1-DS0-341-K55</b><br>231524 |                         |           |
|                                   |                | 0.75                                      | 1.9  | 1.6 – 2.5                 | 35                        | <b>XS1-DS0-341-K75</b><br>231525 |                         |           |
|                                   |                | 1.5                                       | 3.6  | 2.5 – 4                   | 56                        | <b>XS1-DS0-341-1K5</b><br>231526 |                         |           |
|                                   |                | 2.2                                       | 5  | 4 – 6.3                   | 88                        | <b>XS1-DS0-341-2K2</b><br>231527 |                         |           |
|                                   |                | 3   | 6.6  | 6.3 – 10                  | 140                       | <b>XS1-DS0-341-3K0</b><br>265684 |                         |           |
|                                   |                | 4   | 8.5  | 6.3 – 10                  | 140                       | <b>XS1-DS0-341-4K0</b><br>265685 |                         |           |



| Motor data  |  | Setting range                   |  | Type Article no. | Price See Price List | Std. pack |
|---|--|---------------------------------|--|------------------|----------------------|-----------|
| Rated power, AC-3 motor load switch<br>400 V<br>$P$<br>kW | Rated operational current AC-3 400 V<br>$I_e$<br>A | Overload releases<br>$I_r$<br>A | Short-circuit release<br>$I_{rm}$<br>A |                  |                      |           |





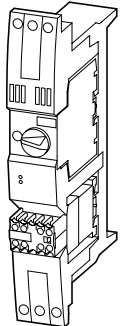
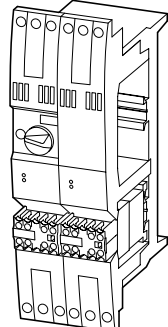
Reversing starter, power section



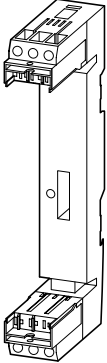
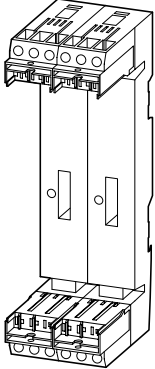


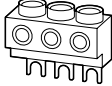

|             | Rated power, AC-3 motor load switch | Rated operational current AC-3 400 V | Overload releases | Short-circuit release | Type Article no.          | Price See Price List | Std. pack |
|-------------|-------------------------------------|--------------------------------------|-------------------|-----------------------|---------------------------|----------------------|-----------|
| Without AGM | 0.06                                | 0.21                                 | 0.16 – 0.25       | 3.5                   | XS1-RS0-340-K06<br>231259 |                      | 1 off     |
|             | 0.09                                | 0.31                                 | 0.25 – 0.4        | 5.6                   | XS1-RS0-340-K09<br>231260 |                      |           |
|             | 0.18                                | 0.6                                  | 0.4 – 0.63        | 8.8                   | XS1-RS0-340-K18<br>231261 |                      |           |
|             | 0.25                                | 0.8                                  | 0.6 – 1           | 14                    | XS1-RS0-340-K25<br>231262 |                      |           |
|             | 0.55                                | 1.5                                  | 1 – 1.6           | 22                    | XS1-RS0-340-K55<br>231263 |                      |           |
|             | 0.75                                | 1.9                                  | 1.6 – 2.5         | 35                    | XS1-RS0-340-K75<br>231264 |                      |           |
|             | 1.5                                 | 3.6                                  | 2.5 – 4           | 56                    | XS1-RS0-340-1K5<br>231265 |                      |           |
|             | 2.2                                 | 5                                    | 4 – 6.3           | 88                    | XS1-RS0-340-2K2<br>231266 |                      |           |
|             | 3                                   | 6.6                                  | 6.3 – 10          | 140                   | XS1-RS0-340-3K0<br>265686 |                      |           |
|             | 4                                   | 8.5                                  | 6.3 – 10          | 140                   | XS1-RS0-340-4K0<br>265687 |                      |           |
| With AGM    | 0.06                                | 0.21                                 | 0.16 – 0.25       | 3.5                   | XS1-RS0-341-K06<br>231528 |                      | 1 off     |
|             | 0.09                                | 0.32                                 | 0.25 – 0.4        | 5.6                   | XS1-RS0-341-K09<br>231529 |                      |           |
|             | 0.18                                | 0.6                                  | 0.4 – 0.63        | 8.8                   | XS1-RS0-341-K18<br>231530 |                      |           |
|             | 0.25                                | 0.8                                  | 0.6 – 1           | 14                    | XS1-RS0-341-K25<br>231531 |                      |           |
|             | 0.55                                | 1.5                                  | 1 – 1.6           | 22                    | XS1-RS0-341-K55<br>231532 |                      |           |
|             | 0.75                                | 1.9                                  | 1.6 – 2.5         | 35                    | XS1-RS0-341-K75<br>231533 |                      |           |
|             | 1.5                                 | 3.6                                  | 2.5 – 4           | 56                    | XS1-RS0-341-1K5<br>231534 |                      |           |
|             | 2.2                                 | 5                                    | 4 – 6.3           | 88                    | XS1-RS0-341-2K2<br>231535 |                      |           |
|             | 3                                   | 6.6                                  | 6.3 – 10          | 140                   | XS1-RS0-341-3K0<br>265688 |                      |           |
|             | 4                                   | 8.5                                  | 6.3 – 10          | 140                   | XS1-RS0-341-4K0<br>265690 |                      |           |

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xStart-XS1 networkable motor starters

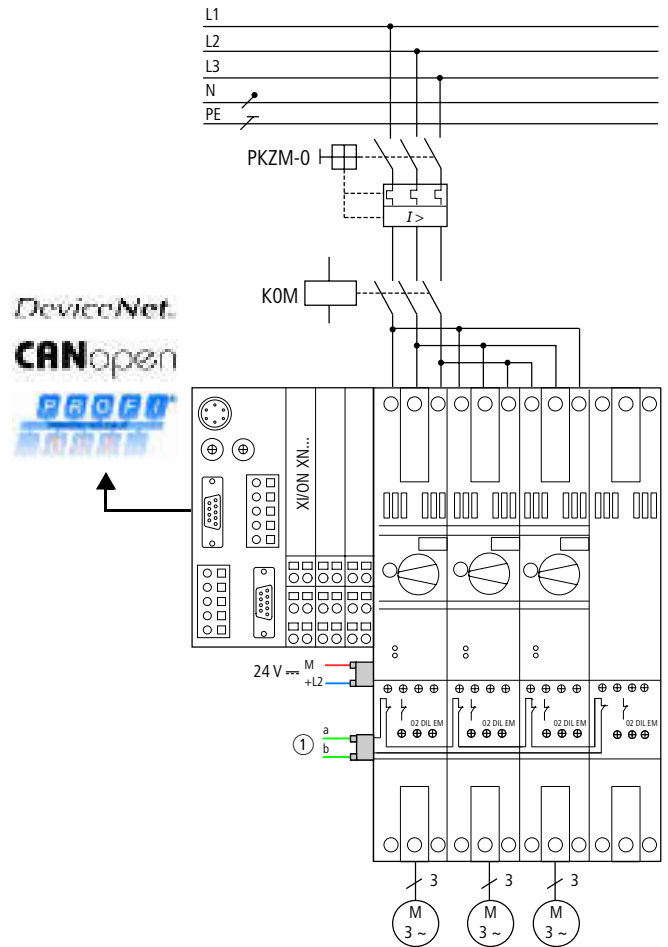
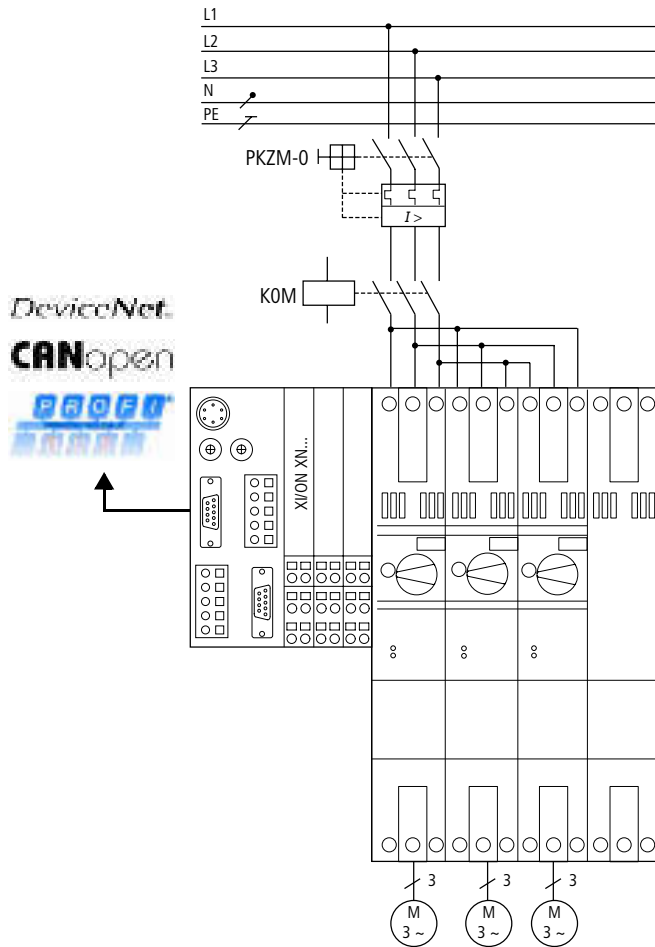
|   |             | Motor data                          | Rated operational current | Setting range   | Short-circuit  | Type                             | Price          | Std. pack |
|---|-------------|-------------------------------------|---------------------------|---|--|----------------------------------|----------------|-----------|
|   |             | Rated power, AC-3 motor load switch | AC-3 400 V                | Overload releases   | releases   | Article no.                      | See Price List |           |
|   |             | 400 V                               | $I_e$                     | $I_r$   | $I_m$  |                                  |                |           |
|   |             | P                                   | A                         | A   | A  |                                  |                |           |
|   |             | kW                                  |                           |  |  |                                  |                |           |
| <b>DOL starter, power section</b>   |             |                                     |                           |   |  |                                  |                |           |
|    | Without AGM | 0.06                                | 0.21                      | 0.16 – 0.25   | 3.5  | <b>XS1-DS1-340-K06</b><br>274225 |                | 1 off     |
|   |             | 0.09                                | 0.31                      | 0.25 – 0.4  | 5.6  | <b>XS1-DS1-340-K09</b><br>274226 |                |           |
|   |             | 0.18                                | 0.6                       | 0.4 – 0.63  | 8.8  | <b>XS1-DS1-340-K18</b><br>274228 |                |           |
|   |             | 0.25                                | 0.8                       | 0.6 – 1   | 14   | <b>XS1-DS1-340-K25</b><br>274229 |                |           |
|   |             | 0.55                                | 1.5                       | 1 – 1.6   | 22   | <b>XS1-DS1-340-K55</b><br>274250 |                |           |
|   |             | 0.75                                | 1.9                       | 1.6 – 2.5   | 35   | <b>XS1-DS1-340-K75</b><br>274252 |                |           |
|   |             | 1.5                                 | 3.6                       | 2.5 – 4   | 56   | <b>XS1-DS1-340-1K5</b><br>274253 |                |           |
|   |             | 2.2                                 | 5                         | 4 – 6.3   | 88   | <b>XS1-DS1-340-2K2</b><br>274254 |                |           |
|   |             | 3                                   | 6.6                       | 6.3 – 10  | 140  | <b>XS1-DS1-340-3K0</b><br>274256 |                |           |
| 4   | 8.5         | 6.3 – 10                            | 140                       | <b>XS1-DS1-340-4K0</b><br>274257  |  |                                  |                |           |
| <b>Reversing starter, power section</b>   |             |                                     |                           |   |  |                                  |                |           |
|  | Without AGM | 0.06                                | 0.21                      | 0.16 – 0.25   | 3.5  | <b>XS1-RS1-340-K06</b><br>274260 |                | 1 off     |
|   |             | 0.09                                | 0.31                      | 0.25 – 0.4  | 5.6  | <b>XS1-RS1-340-K09</b><br>274261 |                |           |
|   |             | 0.18                                | 0.6                       | 0.4 – 0.63  | 8.8  | <b>XS1-RS1-340-K18</b><br>274262 |                |           |
|   |             | 0.25                                | 0.8                       | 0.6 – 1   | 14   | <b>XS1-RS1-340-K25</b><br>274263 |                |           |
|   |             | 0.55                                | 1.5                       | 1 – 1.6   | 22   | <b>XS1-RS1-340-K55</b><br>274264 |                |           |
|   |             | 0.75                                | 1.9                       | 1.6 – 2.5   | 35   | <b>XS1-RS1-340-K75</b><br>274265 |                |           |
|   |             | 1.5                                 | 3.6                       | 2.5 – 4   | 56   | <b>XS1-RS1-340-1K5</b><br>274266 |                |           |
|   |             | 2.2                                 | 5                         | 4 – 6.3   | 88   | <b>XS1-RS1-340-2K2</b><br>274267 |                |           |
|   |             | 3                                   | 6.6                       | 6.3 – 10  | 140  | <b>XS1-RS1-340-3K0</b><br>274268 |                |           |
|   | 4           | 8.5                                 | 6.3 – 10                  | 140   | <b>XS1-RS1-340-4K0</b><br>274269   |                                  |                |           |
|   | With AGM    | 0.06                                | 0.21                      | 0.16 – 0.25   | 3.5  | <b>XS1-RS1-341-K06</b><br>274270 |                |           |
|   |             | 0.09                                | 0.31                      | 0.25 – 0.4  | 5.6  | <b>XS1-RS1-341-K09</b><br>274271 |                |           |
|   |             | 0.18                                | 0.6                       | 0.4 – 0.63  | 8.8  | <b>XS1-RS1-341-K18</b><br>274272 |                |           |
|   |             | 0.25                                | 0.8                       | 0.6 – 1   | 14   | <b>XS1-RS1-341-K25</b><br>274273 |                |           |
|   |             | 0.55                                | 1.5                       | 1 – 1.6   | 22   | <b>XS1-RS1-341-K55</b><br>274274 |                |           |
|   |             | 0.75                                | 1.9                       | 1.6 – 2.5   | 35   | <b>XS1-RS1-341-K75</b><br>274275 |                |           |
|   |             | 1.5                                 | 3.6                       | 2.5 – 4   | 56   | <b>XS1-RS1-341-1K5</b><br>274276 |                |           |
| 2.2   |             | 5                                   | 4 – 6.3                   | 88  | <b>XS1-RS1-341-2K2</b><br>274277   |                                  |                |           |
| 3   | 6.6         | 6.3 – 10                            | 140                       | <b>XS1-RS1-341-3K0</b><br>274278  |  |                                  |                |           |
| 4   | 8.5         | 6.3 – 10                            | 140                       | <b>XS1-RS1-341-4K0</b><br>274279  |  |                                  |                |           |



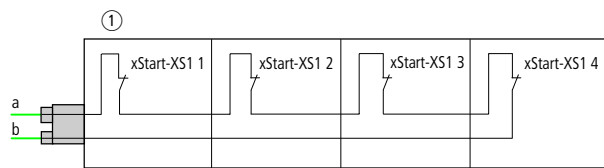
|   |   | Description   | Type Article no.                | Price See Price List | Std. pack |
|---|---|---|---------------------------------|----------------------|-----------|
| <b>Base modules</b>   |   |   |                                 |                      |           |
|    | For DOL starters without AGM  | –   | <b>XS1-XBMS-DS0-A</b><br>231267 |                      | 1 off     |
|   | For DOL starters without AGM<br>– Safety version –  | –   | <b>XS1-XBMS-DS1-A</b><br>274258 |                      | 1 off     |
|   | For DOL starters with AGM and for reversing starters with/without AGM                       | –   | <b>XS1-XBMS-RS0-A</b><br>231268 |                      | 1 off     |
|   | For DOL starters with AGM and for reversing starters with/without AGM<br>– Safety version – | –   | <b>XS1-XBMS-RS1-A</b><br>274280 |                      | 1 off     |
| <b>Accessories</b>  |   |   |                                 |                      |           |
|  | Three-phase commoning links   | Finger and back-of-hand-proof,<br>$U_e = 690\text{ V}$ , $I_u = 63\text{ A}$<br>Can be extended through rotated mounting<br>Length 90 mm  | <b>B3.0/2-PKZO</b><br>063961    |                      | 10 off    |
|  | Three-phase commoning links   | Finger and back-of-hand-proof,<br>$U_e = 690\text{ V}$ , $I_u = 63\text{ A}$<br>Can be extended through rotated mounting<br>Length 180 mm | <b>B3.0/4-PKZO</b><br>063960    |                      | 10 off    |
|  | Incoming terminal   | For three-phase commoning link<br>Finger and back-of-hand-proof,<br>$U_e = 690\text{ V}$ , $I_u = 63\text{ A}$                            | <b>BK25/3-PKZO</b><br>032720    |                      | 5 off     |
|  | Shroud for unused terminals   | Protection against direct contact.<br>For covering unused terminals of the<br>three-phase current commoning link                          | <b>H-B3-PKZO</b><br>032721      |                      | 20 off    |

Standard version

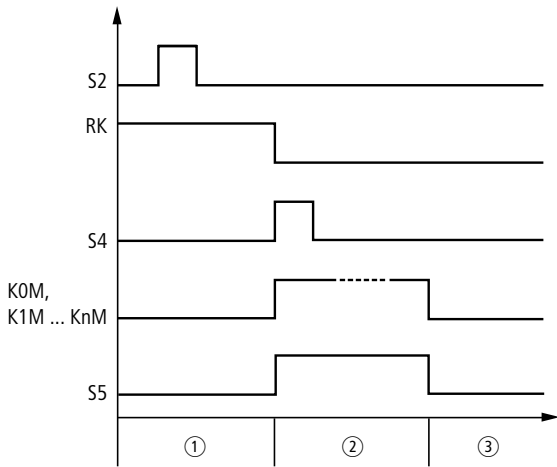
Safety version



Feedback circuit

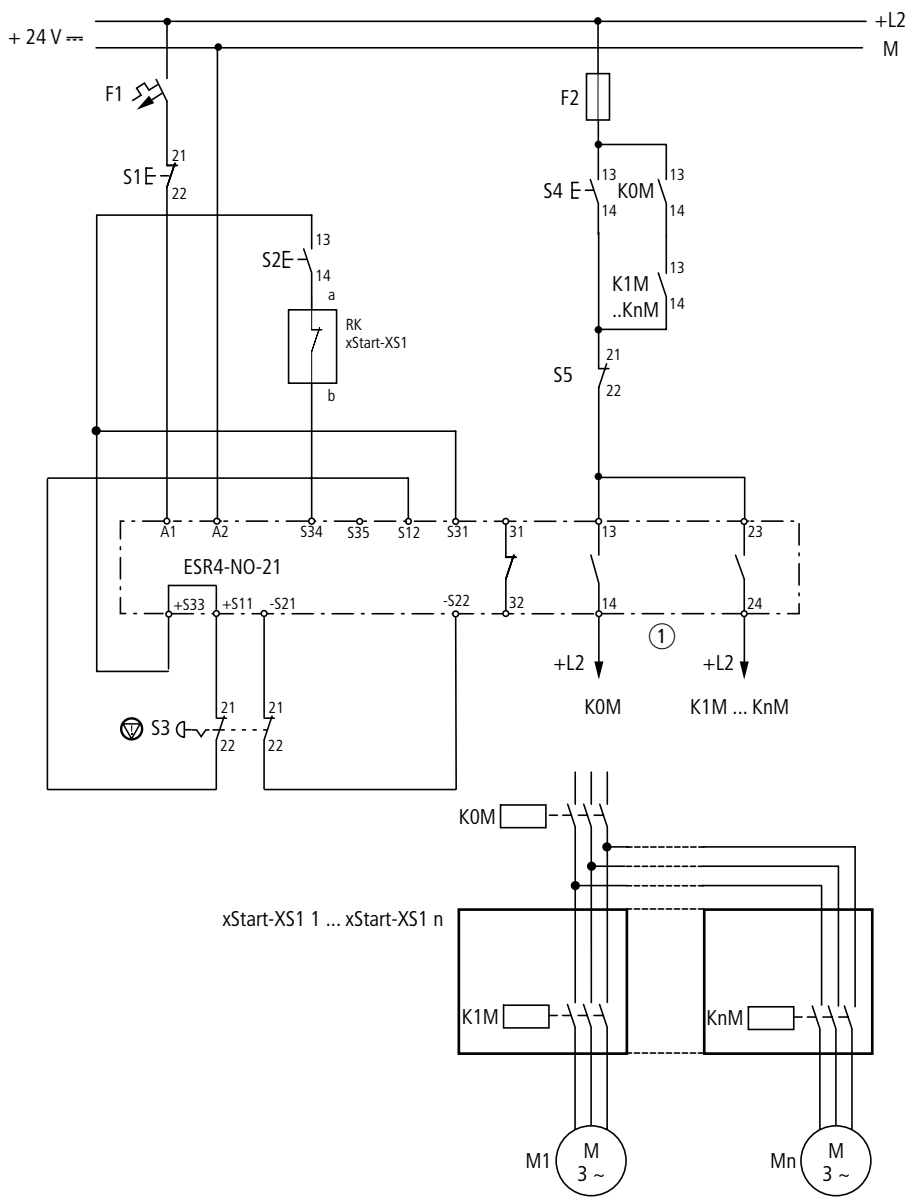


Flow diagram: xStart-XS1 safety version



- ① Scanning protection state of xStart-XS1 feedback circuit
- ② ON switching signal
- ③ OFF switching signal

xStart-XS1 safety version and ESR4 safety relay



- RK: Feedback circuit
- S1: OFF
- S2: ON
- S3: Emergency-stop
- S4: Start
- S5: Stop
- KOM: Group contactor
- K1M..KnM: xStart-XS1 modules

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#### AS interface KLAS motor starter combinations

The KLAS networkable load feeder system allows a motor starter (DOL or reversing starter) to be networked with the AS interface bus system.

All networkable KLAS motor starter combinations with PKZM0 and DILM are suitable for type "1" coordination and with motor ratings up to 0.55 kW also for type "2" coordination.

Using KLAS allows the additional benefits of bus systems, such as optimum operating safety, to be fully exploited:

#### Time savings, cost reduction, simple maintenance

- Simple planning (no cable harnesses, optimum flexibility)
- Simpler engineering and documentation, since terminal points are no longer necessary
- Reduction of installation costs (cables, plugs, cable ducts etc.)
- Simple maintenance (precise diagnostics, short downtimes)



#### KLAS open

KLAS offers an open, modular system for use in control panels. It is supplied as a fully assembled, pre-wired and tested solution for ratings up to 7.5 kW at 400/415 V AC. The bus logic is integrated in the motor starter module, so no additional mounting width is required. The motor starter module is connected with two insulation piercing terminals.

#### Compact, simple handling

- No additional space required in the control panel
- Adaption on busbar system or mounting on top-hat rail
- AS interface diagnostics and auxiliary power status via LED
- Plug-in load feeder





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Moeller HPL0211-2004/2005

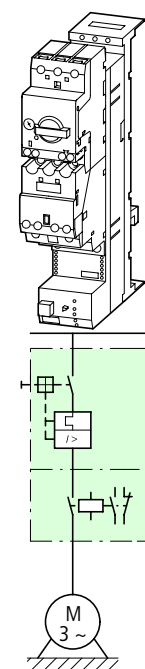
KLAS motor starter combinations

KLAS motor starter combinations

| Motor data                 |   |                                      | Setting range             |                           | Actuating voltage 230 V 50 Hz   |   | Std. pack |
|----------------------------|---|--------------------------------------|---------------------------|---------------------------|---|---|-----------|
| Motor rating<br>AC-3 400 V | Rated operational current<br>AC-3 400 V | Rated short-circuit current at 400 V | Overload releases         | Short-circuit release     | Type<br>Article no.   | Price<br>See Price List   |           |
| <i>P</i><br>kW             | <i>I<sub>e</sub></i><br>A               | <i>I<sub>q</sub></i><br>kA           | <i>I<sub>r</sub></i><br>A | <i>I<sub>m</sub></i><br>A |  |  |           |

| Actuating voltage 24 V DC |                         | Std. pack | Notes |
|---------------------------|-------------------------|-----------|-------|
| Type<br>Article no.       | Price<br>See Price List |           |       |

KLAS open compact starter PKZM0 for type "1" coordination



| Motor rating (kW) | Rated operational current (A) | Rated short-circuit current (kA) | Overload releases (A) | Short-circuit release (A) | Type Article no.        | Price | Std. pack |
|-------------------|-------------------------------|----------------------------------|-----------------------|---------------------------|-------------------------|-------|-----------|
| 0.06              | 0.21                          | 100                              | 0.16 – 0.25           | 3.5                       | KLAS21-0,06-S-AC 218882 |       | 1 off     |
| 0.09              | 0.31                          | 100                              | 0.25 – 0.4            | 5.6                       | KLAS21-0,09-S-AC 218883 |       |           |
| 0.12<br>0.18      | 0.41<br>0.6                   | 100                              | 0.4 – 0.63            | 8.8                       | KLAS21-0,18-S-AC 218884 |       |           |
| 0.25              | 0.8                           | 100                              | 0.6 – 1               | 14                        | KLAS21-0,25-S-AC 218885 |       |           |
| 0.37<br>0.55      | 1.1<br>1.5                    | 100                              | 1 – 1.6               | 22                        | KLAS21-0,55-S-AC 218886 |       |           |
| 0.75              | 1.9                           | 100                              | 1.6 – 2.5             | 35                        | KLAS21-0,75-S-AC 218887 |       |           |
| 1.1<br>1.5        | 2.6<br>3.6                    | 100                              | 2.5 – 4               | 56                        | KLAS21-1,5-S-AC 218888  |       |           |
| 2.2               | 5                             | 100                              | 4 – 6.3               | 88                        | KLAS21-2,2-S-AC 218889  |       |           |
| 3<br>4            | 6.6<br>8.5                    | 100                              | 6.3 – 10              | 140                       | KLAS21-4-S-AC 218890    |       |           |

| Type Article no.        | Price | Std. pack | Notes   |
|-------------------------|-------|-----------|---|
| KLAS21-0,06-S-DC 218891 |       | 1 off     | <ul style="list-style-type: none"> <li>The compact starters consist of a PKZM0 motor-protective circuit-breaker and an SE00 contact module of the same mechanical design.</li> <li>The starters are fully prewired</li> <li>The devices can be snap-fitted centrally as a unit onto a IEC/EN 60715 top-hat rail</li> <li>Suppressor always built-in</li> <li>Connection of the AS interface cable and the auxiliary power cable AS interface connector (with insulation piercing terminals)</li> <li>As supplied, all modules have the address zero. In the AS interface network, each slave must have an address between 1 and 31. Each address within the AS interface network must be unique.</li> <li>When ordering with +KLAS-XAD..., starter fully fitted to adapter</li> </ul> |
| KLAS21-0,09-S-DC 218892 |       |           |   |
| KLAS21-0,18-S-DC 218893 |       |           |   |
| KLAS21-0,25-S-DC 218894 |       |           |   |
| KLAS21-0,55-S-DC 218895 |       |           |   |
| KLAS21-0,75-S-DC 218896 |       |           |   |
| KLAS21-1,5-S-DC 218897  |       |           |   |
| KLAS21-2,2-S-DC 218898  |       |           |   |
| KLAS21-4-S-DC 218899    |       |           |   |

| Rail thickness<br>mm                      | For use with | Type<br>Article no.   | Price<br>See Price List | Std. pack |
|---|--------------|-----------------------|-------------------------|-----------|
| <b>KLAS open for SASY60 busbar system</b> |              |                       |                         |           |
| 5   | KLAS21...    | +KLAS-XAD45-5 217032  |                         | 1 off     |
| 10  | KLAS21...    | +KLAS-XAD45-10 218900 |                         |           |
| 5   | KLAS32...    | +KLAS-XAD90-5 217036  |                         |           |
| 10  | KLAS32...    | +KLAS-XAD90-10 218901 |                         |           |

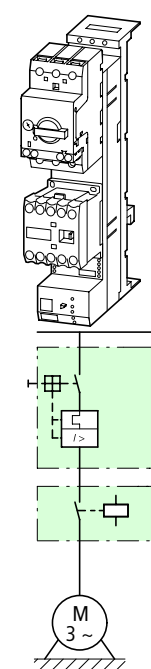
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| Motor data                 |   |   | Setting range     |                        | Actuating voltage 230 V 50 Hz<br>Type<br>Article no. | Price | Std. pack |
|----------------------------|---|---|-------------------|------------------------|--|-------|-----------|
| Motor rating<br>AC-3 400 V | Rated operational current<br>AC-3 400 V | Rated short-circuit current<br>at 400 V | Overload releases | Short-circuit releases |  |       |           |
| $P$<br>kW                  | $I_e$<br>A                              | $I_q$<br>kA                             | $I_r$<br>A        | $I_m$<br>A             |  |       |           |
|                            |   |   |                   |                        |  |       |           |

| Actuating voltage 24 V DC |       | Std. pack | Notes |
|---------------------------|-------|-----------|-------|
| Type<br>Article no.       | Price |           |       |

KLAS open with PKZM0 and DILM



|              |             |     |             |     |                          |       |
|--------------|-------------|-----|-------------|-----|--------------------------|-------|
| 0.06         | 0.21        | 100 | 0.16 – 0.25 | 3.5 | KLAS21-0,06-AC<br>217039 | 1 off |
| 0.09         | 0.31        | 100 | 0.25 – 0.4  | 5.6 | KLAS21-0,09-AC<br>218844 |       |
| 0.12<br>0.18 | 0.41<br>0.6 | 100 | 0.4 – 0.63  | 8.8 | KLAS21-0,18-AC<br>218845 |       |
| 0.25         | 0.8         | 100 | 0.6 – 1     | 14  | KLAS21-0,25-AC<br>218846 |       |
| 0.37<br>0.55 | 1.1<br>1.5  | 100 | 1 – 1.6     | 22  | KLAS21-0,55-AC<br>218847 |       |
| 0.75         | 1.9         | 100 | 1.6 – 2.5   | 35  | KLAS21-0,75-AC<br>218848 |       |
| 1.1<br>1.5   | 2.6<br>3.6  | 100 | 2.5 – 4     | 56  | KLAS21-1,5-AC<br>218849  |       |
| 2.2          | 5           | 100 | 4 – 6.3     | 88  | KLAS21-2,2-AC<br>218850  |       |
| 3<br>4       | 6.6<br>8.5  | 100 | 6.3 – 10    | 140 | KLAS21-4-AC<br>218851    |       |
| 5.5          | 11.3        | 16  | 10 – 16     | 224 | KLAS21-5,5-AC<br>218852  |       |
| 7.5          | 15.2        | 16  | 10 – 16     | 224 | KLAS21-7,5-AC<br>218853  |       |

|                          |       |
|--------------------------|-------|
| KLAS21-0,06-DC<br>218854 | 1 off |
| KLAS21-0,09-DC<br>218855 |       |
| KLAS21-0,18-DC<br>218856 |       |
| KLAS21-0,25-DC<br>218857 |       |
| KLAS21-0,55-DC<br>218858 |       |
| KLAS21-0,75-DC<br>218859 |       |
| KLAS21-1,5-DC<br>218860  |       |
| KLAS21-2,2-DC<br>218861  |       |
| KLAS21-4-DC<br>218862    |       |
| KLAS21-5,5-DC<br>217065  |       |
| KLAS21-7,5-DC<br>217057  |       |

- The DOL starters (complete units) consist of a PKZM0 motor-protective circuit-breaker and a DILM contactor
- The starters are fully prewired
- The devices can be snap-fitted centrally as a unit onto a IEC/EN 60715 top-hat rail
- Suppressor always built-in. Connection of the AS interface cable and the auxiliary power cable AS interface connector (with insulation piercing terminals)
- As supplied, all modules have the address zero. In the AS interface network, each slave must have an address between 1 and 31. Each address within the AS interface network must be unique.
- When ordering with +KLAS-XAD..., starter fully fitted to adapter
- All networkable motor starters fulfill type "1" coordination. Up to 0.55 kW motor rating, additionally type "2" coordination

| Rail thickness | For use with | Type<br>Article no. | Price | Std. pack |
|----------------|--------------|---------------------|-------|-----------|
|----------------|--------------|---------------------|-------|-----------|

KLAS open for SASY60 busbar system

|    |           |                          |  |       |
|----|-----------|--------------------------|--|-------|
| 5  | KLAS21... | +KLAS-XAD45-5<br>217032  |  | 1 off |
| 10 | KLAS21... | +KLAS-XAD45-10<br>218900 |  |       |
| 5  | KLAS32... | +KLAS-XAD90-5<br>217036  |  |       |
| 10 | KLAS32... | +KLAS-XAD90-10<br>218901 |  |       |

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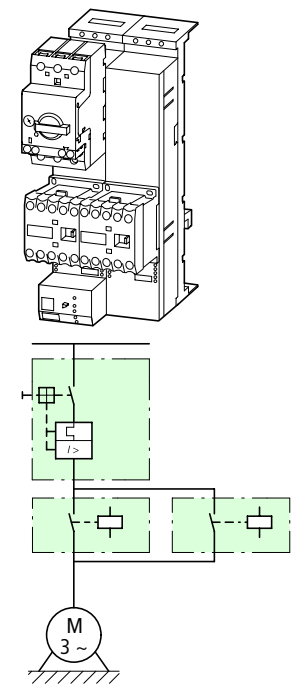
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KLAS motor starter combinations

KLAS motor starter combinations

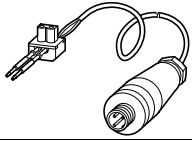

| Motor data                 |  |   | Setting range        |                               | Actuating voltage 230 V 50 Hz |                         |           |
|----------------------------|--|---|----------------------|-------------------------------|-------------------------------|-------------------------|-----------|
| Motor rating<br>AC-3 400 V | Rated opera-<br>tional current<br>AC-3 400 V | Rated short-<br>circuit current<br>at 400 V | Overload<br>releases | Short-<br>circuit<br>releases | Type<br>Article no.           | Price<br>See Price List | Std. pack |
| $P$<br>kW                  | $I_e$<br>A                                   | $I_q$<br>kA                                 | $I_r$<br>A           | $I_m$<br>A                    |                               |                         |           |
|                            |  |   |                      |                               |                               |                         |           |

KLAS open with PKZM0 and DILM



|              |             |     |             |     |                            |  |       |
|--------------|-------------|-----|-------------|-----|----------------------------|--|-------|
| 0.06         | 0.21        | 100 | 0.16 – 0.25 | 3.5 | KLAS32-0,06-W-AC<br>217060 |  | 1 off |
| 0.09         | 0.31        | 100 | 0.25 – 0.4  | 5.6 | KLAS32-0,09-W-AC<br>218863 |  |       |
| 0.12<br>0.18 | 0.41<br>0.6 | 100 | 0.4 – 0.63  | 8.8 | KLAS32-0,18-W-AC<br>218864 |  |       |
| 0.25         | 0.8         | 100 | 0.6 – 1     | 14  | KLAS32-0,25-W-AC<br>218865 |  |       |
| 0.37<br>0.55 | 1.1<br>1.5  | 100 | 1 – 1.6     | 22  | KLAS32-0,55-W-AC<br>218866 |  |       |
| 0.75         | 1.9         | 100 | 1.6 – 2.5   | 35  | KLAS32-0,75-W-AC<br>218867 |  |       |
| 1.1<br>1.5   | 2.6<br>3.6  | 100 | 2.5 – 4     | 56  | KLAS32-1,5-W-AC<br>218868  |  |       |
| 2.2          | 5           | 100 | 4 – 6.3     | 88  | KLAS32-2,2-W-AC<br>218869  |  |       |
| 3<br>4       | 6.6<br>8.5  | 100 | 6.3 – 10    | 140 | KLAS32-4-W-AC<br>218870    |  |       |
| 5.5          | 11.3        | 16  | 10 – 16     | 224 | KLAS32-5,5-W-AC<br>218871  |  |       |
| 7.5          | 15.2        | 16  | 10 – 16     | 224 | KLAS32-7,5-W-AC<br>218872  |  |       |

| Actuating voltage 24 V DC  |                         |           |  |  |
|----------------------------|-------------------------|-----------|--|--|
| Type<br>Article no.        | Price<br>See Price List | Std. pack | Notes  |  |
| KLAS32-0,06-W-DC<br>218873 |                         | 1 off     | <ul style="list-style-type: none"> <li>The reversing starters (complete units) consist of a PKZM0 motor-protective circuit-breaker and two DILM contactors</li> <li>The starters are fully prewired</li> <li>The devices can be snap-fitted centrally as a unit onto a IEC/EN 60715 top-hat rail</li> <li>2.2 kW reversing starters also with mechanical interlock for increased safety during reversing operation</li> <li>Suppressor always built-in</li> <li>Connection of the AS interface cable and the auxiliary power cable AS interface connector (with insulation piercing terminals)</li> <li>As supplied, all modules have the address zero. In the AS interface network, each slave must have an address between 1 and 31. Each address within the AS interface network must be unique.</li> <li>All networkable motor starters fulfill type "1" coordination. Up to 0.55 kW motor rating, additionally type "2" coordination</li> <li>When ordering with +KLAS-XAD..., starter fully fitted to adapter</li> </ul> |  |
| KLAS32-0,09-W-DC<br>218874 |                         |           |  |  |
| KLAS32-0,18-W-DC<br>218875 |                         |           |  |  |
| KLAS32-0,25-W-DC<br>218876 |                         |           |  |  |
| KLAS32-0,55-W-DC<br>218877 |                         |           |  |  |
| KLAS32-0,75-W-DC<br>218878 |                         |           |  |  |
| KLAS32-1,5-W-DC<br>218879  |                         |           |  |  |
| KLAS32-2,2-W-DC<br>217063  |                         |           |  |  |
| KLAS32-4-W-DC<br>218880    |                         |           |  |  |
| KLAS32-5,5-W-DC<br>218881  |                         |           |  |  |
| KLAS32-7,5-W-DC<br>217058  |                         |           |  |  |

| Description  |   | Type<br>Article no.      | Price                        | Std. pack |
|--|---|--------------------------|------------------------------|-----------|
| <b>Accessories</b>   |   |                          |                              |           |
| Addressing cable   |   |                          |                              |           |
|   | Cable for connecting the addressing unit to KLAS open:<br>Addressing cable with M12 plug and AS interface connecting plug | <b>ADL-ASI</b><br>219553 |                              | 1 off     |
| AS interface connection plug kit   |   |                          |                              |           |
| <ul style="list-style-type: none"> <li>• For data and auxiliary power cable</li> <li>• Set of 5 of the same colour with insulation piercing terminals for 2 × (0.5 – 0.75 mm<sup>2</sup>)</li> <li>• Standard drain wire, for KLAS open</li> </ul> |   |                          |                              |           |
|   | –   | Yellow                   | <b>ZB2-102-DS1</b><br>219550 | 1 off     |
|  | –   | Black                    | <b>ZB2-102-DS2</b><br>219551 |           |
|  | –   | Red                      | <b>ZB2-102-DS3</b><br>219552 |           |



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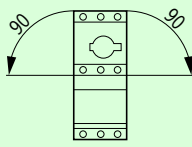
|   |  |       | DOL starters  | Reversing starters           | Base modules                 |                              |
|---|--|-------|---|------------------------------|------------------------------|------------------------------|
| <b>General technical data</b>   |  |       |   |                              |                              |                              |
| Standards   |  |       | IEC/EN 60947-1 and IEC/EN 60947-4-1<br>EN 50081-1, EN 50082-2 |                              |                              |                              |
| Radio interference suppression (EN 55011)   |  |       | Yes   | Yes                          | Yes                          |                              |
| Limit value class   |  |       | "B"   | "B"                          | "B"                          |                              |
| Degree of protection  |  |       | IP 20   | IP 20                        | IP 20                        |                              |
| Overvoltage category/pollution degree   |  |       | III/3   | III/3                        | III/3                        |                              |
| Climatic proofing   |  |       | Damp heat, constant, to IEC 60068-2-3                         |                              |                              |                              |
| Ambient temperature   |  |       |   |                              |                              |                              |
| Storage   |  | °C    | -25/70  | -25/70                       | -25/70                       |                              |
| Operation   |  | °C    | 0 – 55  | 0 – 55                       | 0 – 55                       |                              |
| Half-sinusoidal shock, 20 ms to IEC 60068-2-27                                      |  |       | g   | 8                            | 8                            |                              |
| Mounting position   |  |       | Vertical or horizontal  |                              |                              |                              |
| Distance of mounting rail (central)<br>(vertical: xStart rotated 90° anticlockwise) |  |       | 125 mm  | 125 mm                       | 125 mm                       |                              |
| <b>Main circuit</b>   |  |       |   |                              |                              |                              |
| Rated operational voltage   |  | $U_e$ | V AC  | 415, AC-3                    | 415, AC-3                    | 415, AC-3                    |
| Rated insulation voltage  |  | $U_i$ | V   | 690                          | 690                          | 690                          |
| Rated operational current of three-phase block                                      |  | $I_e$ | A   | 63                           | 63                           | 63                           |
| Coordination type   |  |       |   |                              |                              |                              |
| Up to 1.6 A   |  |       | 2   | 2                            | –                            |                              |
| Up to 10 A  |  |       | 1   | 1                            | –                            |                              |
| Motor starting current  |  |       | A   | max. 70                      | max. 70                      | –                            |
| <b>Auxiliary circuit</b>  |  |       |   |                              |                              |                              |
| Rated operational voltage   |  | $U_e$ | V DC  | 24                           | 24                           | 24                           |
| <b>Terminal capacity</b>  |  |       |   |                              |                              |                              |
| Incoming terminal   |  |       |   |                              |                              |                              |
| Stranded  |  |       | mm <sup>2</sup>   | 2.5 – 25                     | 2.5 – 25                     | 2.5 – 25                     |
| Flexible with ferrule   |  |       | mm <sup>2</sup>   | 2.5 – 16                     | 2.5 – 16                     | 2.5 – 16                     |
| Motor feeder  |  |       |   |                              |                              |                              |
| Solid   |  |       | mm <sup>2</sup>   | 1 × (1 – 6)<br>2 × (1 – 2.5) | 1 × (1 – 6)<br>2 × (1 – 2.5) | 1 × (1 – 6)<br>2 × (1 – 2.5) |
| Flexible with ferrule   |  |       | mm <sup>2</sup>   | 1 × (1 – 4)<br>2 × (1 – 2.5) | 1 × (1 – 4)<br>2 × (1 – 2.5) | 1 × (1 – 4)<br>2 × (1 – 2.5) |



# 16/18 Technical data

## KLAS motor starter combinations

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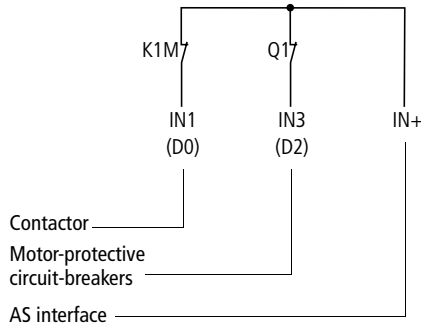
|   |           |                 | KLAS open  |
|---|-----------|-----------------|--|
| <b>General technical data</b>   |           |                 |  |
| Standards   |           |                 | EN 50081-1<br>EN 50081-2   |
| Radio interference suppression  |           |                 | EN 55011   |
| Limit value class   |           |                 | B  |
| Degree of protection  |           |                 | IP 20  |
| Climatic proofing   |           |                 | Damp heat, constant, to IEC 60068-2-78<br>Damp heat, cyclic, to IEC 60068-2-30     |
| Ambient temperature   |           |                 |  |
| Storage   |           | °C              | -25 – 70   |
| Open  |           | °C              | 0/55   |
| Mechanical shock resistance (IEC/EN 60068-2-27)   |           |                 |  |
| Half-sinusoidal shock, 20 ms to IEC 60068-2-27  |           | g               | 8  |
| Mounting position   |           |                 |  |
| <b>AS interface</b>   |           |                 |  |
| Power supply for electronics and inputs (switching device state signalling through AS interface data cable) |           | V DC            | 26.5 – 31.6 (to AS interface specifications)                                       |
| AS interface slave profile  |           |                 |  |
| I/O configuration (hex)   |           |                 | 7  |
| ID code (hex)   |           |                 | F  |
| Total power consumption of the AS interface   |           | mA              | ≤65  |
| Protection against polarity reversal  |           |                 | Yes  |
| <b>Outputs</b>  |           |                 |  |
| External power supply of outputs (actuation of contactor coils through auxiliary power)                     |           | V               | 24 DC<br>230 AC  |
| Watchdog function (isolation of outputs on AS interface fault)  |           |                 | Integrated   |
| <b>Main circuit</b>   |           |                 |  |
| Rated operational voltage   | $U_e$     | V AC            | 415  |
| Rated impulse withstand voltage   | $U_{imp}$ | kV              | 4  |
| Overvoltage category/pollution degree   |           |                 | III/3  |
| Rated uninterrupted current   | $I_u$     | A               | 16   |
| Terminal capacity   |           |                 |  |
| AS interface and auxiliary power  |           | mm <sup>2</sup> | 0.5 – 0.75 (flexible through plug connector)                                       |
| Motor connector   |           | mm <sup>2</sup> | ≤ 2.5 (flexible without ferrule)   |
| Notes   |           |                 | Mechanical shock resistance:<br>6 g for KLAS...-4...7,5-AC(DC)                     |



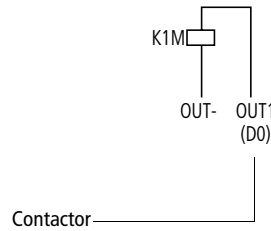
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**DOL starters**

Input assignment

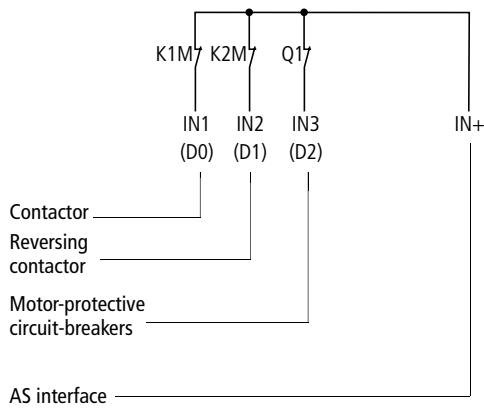


Output assignment

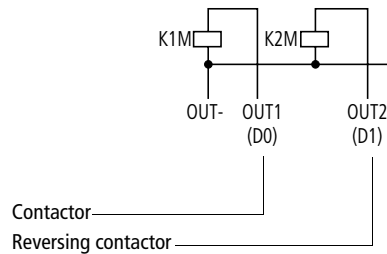


**Reversing starters**

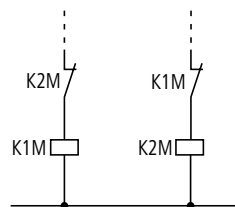
Input assignment



Output assignment



**Reversing starter interlock programming**



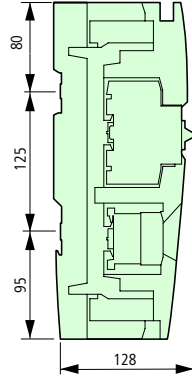
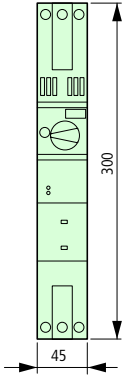
$$OUT1 = \dots \wedge \overline{START2} \wedge IN2 \wedge \overline{OUT2}$$

$$OUT2 = \dots \wedge \overline{START1} \wedge IN1 \wedge \overline{OUT1}$$

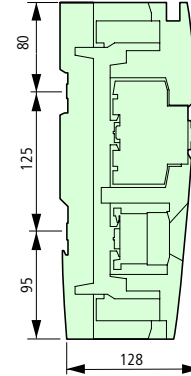
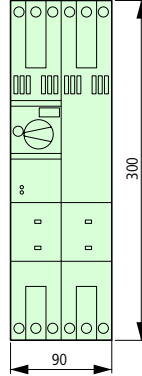


Standard

**DOL starters**  
XS1-DS0-340-...  
XS1-DS0-341-...

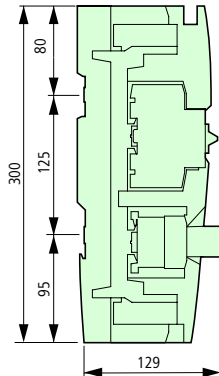
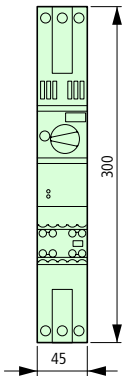


**Reversing starters**  
XS1-RS0-340-...  
XS1-RS0-341-...

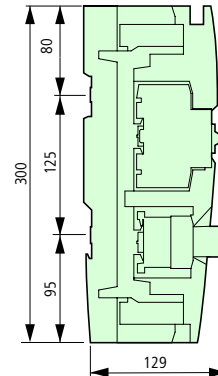
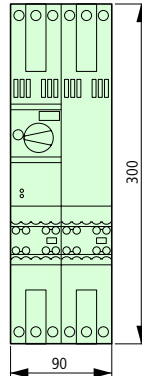


Safety version

**DOL starters**  
XS1-DS1-340-...



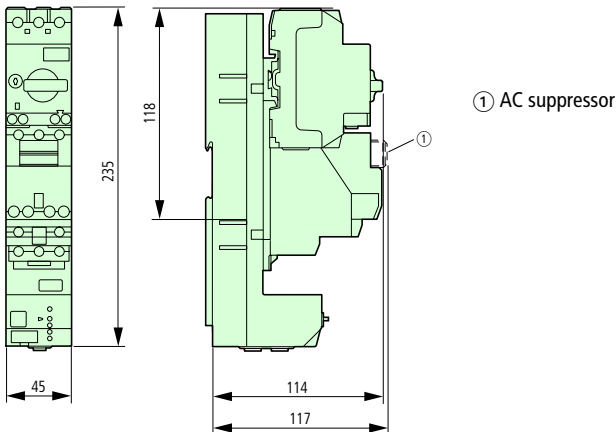
**Reversing starters**  
XS1-RS1-340-...  
XS1-RS1-341-...



Moeller HPL 0211-2004/2005

**KLAS open compact starter**

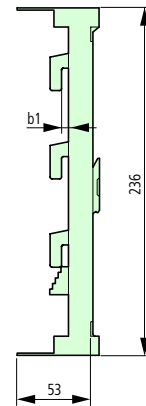
KLAS21-0.06...4-S-AC(DC)



| Type                     | Weight [kg] |
|--------------------------|-------------|
| KLAS21-0.06...4-S-AC(DC) | 0.85        |

**Busbar adapters**

KLAS21-...+KLAS-XAD45-5(10)  
KLAS32-...+KLAS-XAD90-5(10)

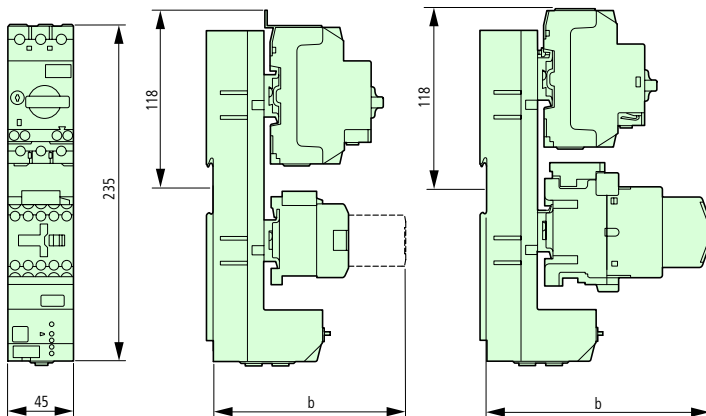


| Type           | b1 | Weight [kg] |
|----------------|----|-------------|
| +KLAS-XAD45-5  | 5  | 0.18        |
| +KLAS-XAD45-10 | 10 | 0.20        |
| +KLAS-XAD90-5  | 5  | 0.36        |
| +KLAS-XAD90-10 | 10 | 0.40        |

**KLAS open DOL starters**

KLAS21-0.06...2.2-AC(DC)

KLAS21-4...7.5-AC(DC)

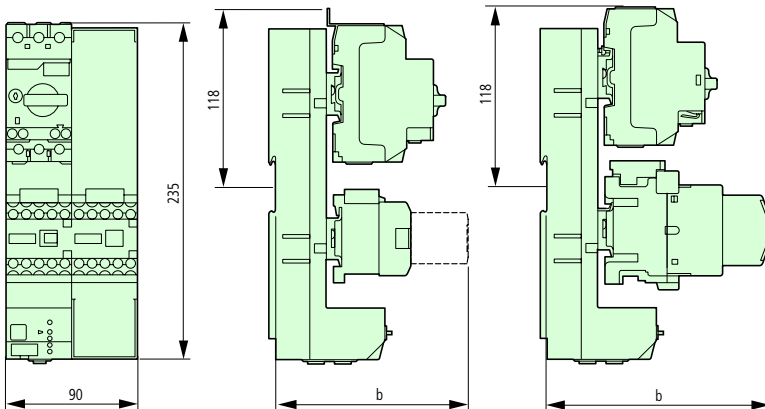


| Type                 | b   | Weight [kg] |
|----------------------|-----|-------------|
| KLAS21-0.06...2.2-AC | 127 | 0.76        |
| KLAS21-0.06...2.2-DC | 127 | 0.73        |
| KLAS21-4...5.5-AC    | 149 | 0.91        |
| KLAS21-4...5.5-DC    | 174 | 1.09        |
| KLAS21-7.5-AC        | 155 | 1.09        |
| KLAS21-7.5-DC        | 180 | 1.44        |

**KLAS open reversing starters**

KLAS32-0.06...2.2-W-AC(DC)

KLAS32-4...7.5-W-AC(DC)



| Type                   | b   | Weight [kg] |
|------------------------|-----|-------------|
| KLAS32-0.06...2.2-W-AC | 127 | 1.30        |
| KLAS32-0.06...2.2-W-DC | 127 | 1.36        |
| KLAS32-4...5.5-W-AC    | 149 | 1.60        |
| KLAS32-4...5.5-W-DC    | 174 | 2.08        |
| KLAS32-7.5-W-AC        | 155 | 1.96        |
| KLAS32-7.5-W-DC        | 180 | 2.58        |

